

BCS 04-5003-PCT_Erhöhte Akt. OK1 & R1_SEQUENZPROTOKOLL.ST25
SEQUENCE LISTING

<110> Bayer CropScience GmbH

<120> Plants with increased activity of multiple starch phosphorylating enzymes

<130> BCS 04-5003-PCT

<150> EP 04090089.6

<151> 2004-03-05

<150> US 60/550,021

<151> 2004-03-05

<150> EP 04090284.3

<151> 2004-07-21

<150> EP 04090121.7

<151> 2004-03-29

<160> 17

<170> PatentIn version 3.1

<210> 1

<211> 3591

<212> DNA

<213> Arabidopsis thaliana

<220>

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Lys Lys Lys Asp Gly Ser Gly Thr Lys Val Arg Leu Asn Val Arg Leu
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Asp His Gln Val Asn Phe Gly Asp His Val Ala Met Phe Gly Ser Ala
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Tyr Lys Phe Val Ile Val Lys Asn Asp Gly Ser Leu Ser Trp Glu Ser
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Gly Asp Asn Arg Val Leu Lys Val Pro Asn Ser Gly Asn Phe Ser Val
 145 150 155 160

Val Cys His Trp Asp Ala Thr Arg Glu Thr Leu Asp Leu Pro Gln Glu
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Val Gly Asn Asp Asp Asp Val Gly Asp Gly Gly His Glu Arg Asp Asn
 180 185 190

His Asp Val Gly Asp Asp Arg Val Val Gly Ser Glu Asn Gly Ala Gln
 195 200 205

Leu Gln Lys Ser Thr Leu Gly Gly Gln Trp Gln Gly Lys Asp Ala Ser
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Phe Met Arg Ser Asn Asp His Gly Asn Arg Glu Val Gly Arg Asn Trp
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Arg Asn Ser Lys Asn Trp Trp Arg Lys Leu Glu Met Val Arg Glu Val
 260 265 270

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 325 330 335

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Phe Lys Ala Glu Phe Thr Ala Ala Val Pro Leu Thr Arg Ile Arg Asp

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 405 410 415

Tyr Ser Gly Asp Phe Val Glu Gln Phe Lys Ile Phe His Asn Glu Leu
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Glu Leu Ile Lys Thr Met His Ser Leu Ala Ser Leu Arg Glu Thr Ile
 485 490 495

Ile Lys Glu Leu Asn Ser Gly Leu Arg Asn Asp Ala Pro Asp Thr Ala
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Ile Ala Met Arg Gln Lys Trp Arg Leu Cys Glu Ile Gly Leu Glu Asp
 515 520 525

Tyr Phe Phe Val Leu Leu Ser Arg Phe Leu Asn Ala Leu Glu Thr Met
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Gly Gly Ala Asp Gln Leu Ala Lys Asp Val Gly Ser Arg Asn Val Ala
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Ser Trp Asn Asp Pro Leu Asp Ala Leu Val Leu Gly Val His Gln Val
 565 570 575

Gly Leu Ser Gly Trp Lys Gln Glu Glu Cys Leu Ala Ile Gly Asn Glu
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Leu Leu Ala Trp Arg Glu Arg Asp Leu Leu Glu Lys Glu Gly Glu Glu
 595 600 605

Asp Gly Lys Thr Ile Trp Ala Met Arg Leu Lys Ala Thr Leu Asp Arg
 610 615 620

Ala Arg Arg Leu Thr Ala Glu Tyr Ser Asp Leu Leu Leu Gln Ile Phe
 Seite 8

BCS 04-5003-PCT_Erhöhte Akt. OK1 & R1_SEQUENZPROTOKOLL.ST25
 625 630 635 640

Pro Pro Asn Val Glu Ile Leu Gly Lys Ala Leu Gly Ile Pro Glu Asn
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Ser Val Lys Thr Tyr Thr Glu Ala Glu Ile Arg Ala Gly Ile Ile Phe
 660 665 670

Gln Ile Ser Lys Leu Cys Thr Val Leu Leu Lys Ala Val Arg Asn Ser
 675 680 685

Leu Gly Ser Glu Gly Trp Asp Val Val Val Pro Gly Ser Thr Ser Gly
 690 695 700

Thr Leu Val Gln Val Glu Ser Ile Val Pro Gly Ser Leu Pro Ala Thr
 705 710 715 720

Ser Gly Gly Pro Ile Ile Leu Leu Val Asn Lys Ala Asp Gly Asp Glu
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Glu Val Ser Ala Ala Asn Gly Asn Ile Ala Gly Val Met Leu Leu Gln
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Glu Leu Pro His Leu Ser His Leu Gly Val Arg Ala Arg Gln Glu Lys
 755 760 765

Ile Val Phe Val Thr Cys Asp Asp Asp Asp Lys Val Ala Asp Ile Arg
 770 775 780

Arg Leu Val Gly Lys Phe Val Arg Leu Glu Ala Ser Pro Ser His Val
 785 790 795 800

Asn Leu Ile Leu Ser Thr Glu Gly Arg Ser Arg Thr Ser Lys Ser Ser
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Ala Thr Lys Lys Thr Asp Lys Asn Ser Leu Ser Lys Lys Lys Thr Asp
 820 825 830

Lys Lys Ser Leu Ser Ile Asp Asp Glu Glu Ser Lys Pro Gly Ser Ser
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Ser Ser Asn Ser Leu Leu Tyr Ser Ser Lys Asp Ile Pro Ser Gly Gly
 850 855 860

Ile Ile Ala Leu Ala Asp Ala Asp Val Pro Thr Ser Gly Ser Lys Ser
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Ala Ala Cys Gly Leu Leu Ala Ser Leu Ala Glu Ala Ser Ser Lys Val
 885 890 895

His Ser Glu His Gly Val Pro Ala Ser Phe Lys Val Pro Thr Gly Val

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 900 905 910

Val Ile Pro Phe Gly Ser Met Glu Leu Ala Leu Lys Gln Asn Asn Ser
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Glu Glu Lys Phe Ala Ser Leu Leu Glu Lys Leu Glu Thr Ala Arg Pro
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Glu Gly Gly Glu Leu Asp Asp Ile Cys Asp Gln Ile His Glu Val Met
 945 950 955 960

Lys Thr Leu Gln Val Pro Lys Glu Thr Ile Asn Ser Ile Ser Lys Ala
 965 970 975

Phe Leu Lys Asp Ala Arg Leu Ile Val Arg Ser Ser Ala Asn Val Glu
 980 985 990

Asp Leu Ala Gly Met Ser Ala Ala Gly Leu Tyr Glu Ser Ile Pro Asn
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Val Ser Pro Ser Asp Pro Leu Val Phe Ser Asp Ser Val Cys Gln
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Val Trp Ala Ser Leu Tyr Thr Arg Arg Ala Val Leu Ser Arg Arg
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Ala Ala Gly Val Ser Gln Arg Glu Ala Ser Met Ala Val Leu Val
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Gln Glu Met Leu Ser Pro Asp Leu Ser Phe Val Leu His Thr Val
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Ser Pro Ala Asp Pro Asp Ser Asn Leu Val Glu Ala Glu Ile Ala
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Pro Gly Leu Gly Glu Thr Leu Ala Ser Gly Thr Arg Gly Thr Pro
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Trp Arg Leu Ala Ser Gly Lys Leu Asp Gly Ile Val Gln Thr Leu
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Ala Phe Ala Asn Phe Ser Glu Glu Leu Leu Val Ser Gly Thr Gly
 1115 1120 1125

Pro Ala Asp Gly Lys Tyr Val Arg Leu Thr Val Asp Tyr Ser Lys
 1130 1135 1140

Lys Arg Leu Thr Val Asp Ser Val Phe Arg Gln Gln Leu Gly Gln
 1145 1150 1155

Arg Leu Gly Ser Val Gly Phe Phe Leu Glu Arg Asn Phe Gly Cys
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BCS 04-5003-PCT_Erhöhte Akt. OK1 & R1_SEQUENZPROTOKOLL.ST25
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Gly Gly Arg Pro Arg Arg Gly Leu Val Leu Pro Pro Pro Gly Val Gly	
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Ala Gly Val Leu Leu Arg Arg Gly Ala Met Ala Leu Pro Gly Arg Arg	
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Gly Phe Ala Cys Arg Gly Arg Ser Ala Ala Ser Ala Ala Glu Arg Thr	
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Lys Glu Lys Lys Arg Arg Asp Ser Ser Lys Gln Pro Leu Val His Leu	
65 70 75	
cag gtt tgt cta gag cac cag gtt aag ttt ggt gag cat gta ggc att	291
Gln Val Cys Leu Glu His Gln Val Lys Phe Gly Glu His Val Gly Ile	
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Ile Gly Ser Thr Lys Glu Leu Gly Ser Trp Glu Glu Gln Val Glu Leu	
95 100 105	
gaa tgg act aca aat ggt tgg gtc tgc cag ctt aag ctc cct gga gaa	387
Glu Trp Thr Thr Asn Gly Trp Val Cys Gln Leu Lys Leu Pro Gly Glu	
110 115 120 125	
aca ctt gtg gag ttt aaa ttt gtt ata ttt ttg gtg gga gga aaa gat	435
Thr Leu Val Glu Phe Lys Phe Val Ile Phe Leu Val Gly Gly Lys Asp	
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Gly	Lys	Phe	Asp	Ile	Val	Cys	His	Trp	Asn	Arg	Thr	Glu	Glu	Pro	Leu		
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gaa	ctt	tta	gga	aca	cca	aag	ttt	gag	ttg	gtc	gga	gaa	gct	gaa	aag		579
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Asn	Thr	Gly	Glu	Asp	Ala	Ser	Ala	Ser	Val	Thr	Phe	Ala	Pro	Glu	Lys		
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Val	Gln	Asp	Ile	Ser	Val	Val	Glu	Asn	Gly	Asp	Pro	Ala	Pro	Glu	Ala		
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gag	tca	agc	aaa	ttt	ggt	ggg	caa	tgg	caa	gga	agt	aaa	act	gtt	ttc		723
Glu	Ser	Ser	Lys	Phe	Gly	Gly	Gln	Trp	Gln	Gly	Ser	Lys	Thr	Val	Phe		
			225					230					235				
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Met	Arg	Ser	Asn	Glu	His	Leu	Asn	Lys	Glu	Ala	Asp	Arg	Met	Trp	Asp		
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aca	act	ggg	ctt	gat	gga	ata	gca	ctg	aaa	ctg	gtg	gag	ggc	gat	aaa		819
Thr	Thr	Gly	Leu	Asp	Gly	Ile	Ala	Leu	Lys	Leu	Val	Glu	Gly	Asp	Lys		
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gca	tcc	agg	aac	tgg	tgg	cgg	aag	tta	gag	gtt	gtt	cgc	ggg	ata	ttg		867
Ala	Ser	Arg	Asn	Trp	Trp	Arg	Lys	Leu	Glu	Val	Val	Arg	Gly	Ile	Leu		
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Ser	Glu	Ser	Phe	Asp	Asp	Gln	Ser	Arg	Leu	Gly	Ala	Leu	Val	Tyr	Ser		
				290					295					300			
gct	att	tat	ctg	aag	tgg	att	tat	aca	ggt	cag	ata	tcg	tgc	ttt	gaa		963
Ala	Ile	Tyr	Leu	Lys	Trp	Ile	Tyr	Thr	Gly	Gln	Ile	Ser	Cys	Phe	Glu		
			305					310					315				
gat	ggt	ggc	cac	cat	cgg	cct	aac	aaa	cat	gct	gag	ata	tcg	agg	caa		1011
Asp	Gly	Gly	His	His	Arg	Pro	Asn	Lys	His	Ala	Glu	Ile	Ser	Arg	Gln		
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ata	ttc	cgt	gaa	ctt	gaa	atg	atg	tat	tat	ggg	aaa	acc	aca	tca	gcc		1059
Ile	Phe	Arg	Glu	Leu	Glu	Met	Met	Tyr	Tyr	Gly	Lys	Thr	Thr	Ser	Ala		
	335					340					345						
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Lys	Asp	Val	Leu	Val	Ile	Arg	Lys	Ile	His	Pro	Phe	Leu	Pro	Ser	Phe		
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Lys	Ser	Glu	Phe	Thr	Ala	Ser	Val	Pro	Leu	Thr	Arg	Ile	Arg	Asp	Ile		
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gct	cac	cgg	aat	gac	atc	cca	cat	gat	ctc	aag	caa	gaa	atc	aag	cat		1203
Ala	His	Arg	Asn	Asp	Ile	Pro	His	Asp	Leu	Lys	Gln	Glu	Ile	Lys	His		
			385					390					395				
act	ata	caa	aac	aaa	ctt	cat	cgt	aat	gct	gga	cct	gag	gat	ctt	att		1251
Thr	Ile	Gln	Asn	Lys	Leu	His	Arg	Asn	Ala	Gly	Pro	Glu	Asp	Leu	Ile		
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gct Ala 415	aca Thr	gaa Glu	gtc Val	atg Met	ctt Leu	gct Ala 420	agg Arg	att Ile	act Thr	aag Lys	acc Thr 425	cct Pro	gga Gly	gaa Glu	tac Tyr	1299
agt Ser 430	gaa Glu	aca Thr	ttt Phe	gtt Val	gaa Glu 435	caa Gln	ttc Phe	acg Thr	ata Ile	ttt Phe 440	tat Tyr	agc Ser	gaa Glu	cta Leu	aaa Lys 445	1347
gat Asp	ttc Phe	ttc Phe	aat Asn	gct Ala 450	ggc Gly	agc Ser	cta Leu	ttt Phe	gag Glu 455	caa Gln	ctg Leu	gag Glu	tcc Ser	atc Ile 460	aag Lys	1395
gaa Glu	tct Ser	ctg Leu	aac Asn 465	gag Glu	tca Ser	ggc Gly	tta Leu	gaa Glu 470	gtt Val	ctc Leu	tca Ser	tcc Ser	ttt Phe 475	gtg Val	gaa Glu	1443
acc Thr	aaa Lys	agg Arg 480	agt Ser	ttg Leu	gac Asp	caa Gln	gtg Val 485	gat Asp	cat His	gca Ala	gaa Glu	gat Asp 490	ttg Leu	gat Asp	aaa Lys	1491
aat Asn 495	gat Asp	acc Thr	att Ile	caa Gln	att Ile	ttg Leu 500	atg Met	act Thr	acc Thr	ttg Leu	caa Gln 505	tca Ser	tta Leu	tct Ser	tct Ser	1539
cta Leu 510	aga Arg	tcg Ser	gtt Val	cta Leu	atg Met 515	aag Lys	ggc Gly	ctt Leu	gaa Glu	agt Ser 520	ggc Gly	ctt Leu	aga Arg	aat Asn	gat Asp 525	1587
gcg Ala	cct Pro	gat Asp	aat Asn	gct Ala 530	ata Ile	gca Ala	atg Met	cga Arg	caa Gln 535	aag Lys	tgg Trp	cgc Arg	ctt Leu	tgt Cys 540	gaa Glu	1635
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aga Arg	aat Asn 575	act Thr	act Thr	cta Leu	tgg Trp	gat Asp 580	act Thr	act Thr	ctt Leu	gat Asp	gcc Ala 585	ctt Leu	gtc Val	att Ile	ggc Gly	1779
atc Ile 590	aat Asn	caa Gln	gtt Val	agc Ser	ttt Phe 595	tca Ser	ggg Gly	tgg Trp	aaa Lys	aca Thr 600	gat Asp	gaa Glu	tgt Cys	att Ile	gcc Ala 605	1827
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gaa Glu	ggg Gly	tgt Cys	gaa Glu 625	gat Asp	ggg Gly	aaa Lys	tat Tyr	att Ile 630	tgg Trp	tca Ser	cta Leu	aga Arg	ctt Leu 635	aaa Lys	gct Ala	1923
aca Thr	ctg Leu	gac Asp 640	aga Arg	gca Ala	cgg Arg	aga Arg	tta Leu 645	acg Thr	gaa Glu	gag Glu	tac Tyr	tct Ser 650	gaa Glu	gca Ala	ctt Leu	1971
ctt Leu	tct Ser 655	ata Ile	ttc Phe	cct Pro	gaa Glu	aaa Lys 660	gta Val	atg Met	gtt Val	att Ile	ggg Gly 665	aaa Lys	gcc Ala	ctt Leu	gga Gly	2019
ata Ile 670	cca Pro	gat Asp	aac Asn	agt Ser	gtg Val 675	aga Arg	act Thr	tac Tyr	aca Thr	gag Glu 680	gca Ala	gaa Glu	att Ile	cgt Arg	gct Ala 685	2067

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ggc att gtt ttt cag gta tct aaa cta tgc aca gta ctt cag aaa gca	Gly Ile Val Phe	Gln Val Ser Lys Leu Cys Thr Val Leu Gln Lys Ala	690	695	700												2115
att cga gaa gta ctt gga tca act ggc tgg gat gtt ctt gtt cct gga	Ile Arg Glu Val Leu Gly Ser Thr Gly Trp Asp Val Leu Val Pro Gly	705	710	715													2163
gtg gcc cat gga act ctg atg cgg gtg gaa aga att ctt cct gga tca	Val Ala His Gly Thr Leu Met Arg Val Glu Arg Ile Leu Pro Gly Ser	720	725	730													2211
tta cct tca tct gtc aaa gaa cct gtg gtt cta att gta gat aag gct	Leu Pro Ser Ser Val Lys Glu Pro Val Val Leu Ile Val Asp Lys Ala	735	740	745													2259
gat gga gat gaa gag gtc aaa gct gct ggg gat aat ata gtt ggt gtt	Asp Gly Asp Glu Glu Val Lys Ala Ala Gly Asp Asn Ile Val Gly Val	750	755	760													2307
att ctt ctt cag gaa cta cct cac ctt tca cat ctt ggt gtt aga gct	Ile Leu Leu Gln Glu Leu Pro His Leu Ser His Leu Gly Val Arg Ala	770	775	780													2355
cgt caa gag aat gtt gta ttt gta act tgt gaa tat gat gac aca gtt	Arg Gln Glu Asn Val Val Phe Val Thr Cys Glu Tyr Asp Asp Thr Val	785	790	795													2403
aca gat gtg tat ttg ctt gag gga aaa tat atc aga tta gaa gca tca	Thr Asp Val Tyr Leu Leu Glu Gly Lys Tyr Ile Arg Leu Glu Ala Ser	800	805	810													2451
tcc atc aat gtc aat ctc tca ata gtt tca gaa aaa aat gac aat gct	Ser Ile Asn Val Asn Leu Ser Ile Val Ser Glu Lys Asn Asp Asn Ala	815	820	825													2499
gtc tct aca gaa cca aat agt aca ggg aat cca ttt caa cag aaa ctc	Val Ser Thr Glu Pro Asn Ser Thr Gly Asn Pro Phe Gln Gln Lys Leu	830	835	840													2547
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gag ctt tca gaa gct tca gtg gaa tca gct ggt gca aaa gct gct gca	Glu Leu Ser Glu Ala Ser Val Glu Ser Ala Gly Ala Lys Ala Ala Ala	880	885	890													2691
tgc aga act ctt tct gtt ctt gct tca ttg tct aat aaa gtc tat agt	Cys Arg Thr Leu Ser Val Leu Ala Ser Leu Ser Asn Lys Val Tyr Ser	895	900	905													2739
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cca ttt gga tca atg gag gat gcg ctc aag aaa agt gga tca ctg gaa	Pro Phe Gly Ser Met Glu Asp Ala Leu Lys Lys Ser Gly Ser Leu Glu	930	935	940													2835
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Leu	Ser	Pro	Pro	Glu	Glu	Thr	Ile	Ile	Phe	Leu	Lys	Arg	Ile	Phe	Pro	
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Ser	Leu	Met	Asp	Pro	Cys	Ala	Phe	Gly	Ala	Ala	Val	Gly	Lys	Val		
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Trp	Ala	Ser	Leu	Tyr	Thr	Arg	Arg	Ala	Ile	Leu	Ser	Arg	Arg	Ala		
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Glu	Ile	Leu	Gln	Pro	Asp	Leu	Ser	Phe	Val	Leu	His	Thr	Val	Cys		
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Pro	Ala	Asp	His	Asp	Pro	Lys	Val	Val	Gln	Ala	Glu	Val	Ala	Pro		
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Gly	Leu	Gly	Glu	Thr	Leu	Ala	Ser	Gly	Thr	Arg	Gly	Thr	Pro	Trp		
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Arg	Leu	Ser	Cys	Asn	Lys	Phe	Asp	Gly	Lys	Val	Ala	Thr	Leu	Ala		
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Ala	Asn	Gly	Glu	Val	Ile	Arg	Leu	Thr	Val	Asp	Tyr	Ser	Lys	Lys		
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Pro	Leu	Ser	Val	Asp	Thr	Thr	Phe	Arg	Lys	Gln	Phe	Gly	Gln	Arg		
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Leu	Ala	Ala	Ile	Gly	Gln	Tyr	Leu	Glu	Gln	Lys	Phe	Gly	Ser	Ala		
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Gln	Asp	Val	Glu	Gly	Cys	Leu	Val	Gly	Lys	Asp	Ile	Phe	Ile	Val		
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<213> Oryza sativa

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Cys Arg Gly Arg Ser Ala Ala Ser Ala Ala Glu Arg Thr Lys Glu Lys
 50 55 60

Lys Arg Arg Asp Ser Ser Lys Gln Pro Leu Val His Leu Gln Val Cys
 65 70 75 80

Leu Glu His Gln Val Lys Phe Gly Glu His Val Gly Ile Ile Gly Ser
 85 90 95

Thr Lys Glu Leu Gly Ser Trp Glu Glu Gln Val Glu Leu Glu Trp Thr
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Thr Asn Gly Trp Val Cys Gln Leu Lys Leu Pro Gly Glu Thr Leu Val
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Glu Phe Lys Phe Val Ile Phe Leu Val Gly Gly Lys Asp Lys Ile Trp
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Glu Asp Gly Asn Asn Arg Val Val Glu Leu Pro Lys Asp Gly Lys Phe
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Asp Ile Val Cys His Trp Asn Arg Thr Glu Glu Pro Leu Glu Leu Leu
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Gly Thr Pro Lys Phe Glu Leu Val Gly Glu Ala Glu Lys Asn Thr Gly
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Glu Asp Ala Ser Ala Ser Val Thr Phe Ala Pro Glu Lys Val Gln Asp
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Ile Ser Val Val Glu Asn Gly Asp Pro Ala Pro Glu Ala Glu Ser Ser
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Lys Phe Gly Gly Gln Trp Gln Gly Ser Lys Thr Val Phe Met Arg Ser
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Asn Glu His Leu Asn Lys Glu Ala Asp Arg Met Trp Asp Thr Thr Gly
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Leu Asp Gly Ile Ala Leu Lys Leu Val Glu Gly Asp Lys Ala Ser Arg
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Asn Trp Trp Arg Lys Leu Glu Val Val Arg Gly Ile Leu Ser Glu Ser
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Phe Asp Asp Gln Ser Arg Leu Gly Ala Leu Val Tyr Ser Ala Ile Tyr
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Leu Lys Trp Ile Tyr Thr Gly Gln Ile Ser Cys Phe Glu Asp Gly Gly
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His His Arg Pro Asn Lys His Ala Glu Ile Ser Arg Gln Ile Phe Arg
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Leu Val Ile Arg Lys Ile His Pro Phe Leu Pro Ser Phe Lys Ser Glu
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Phe Thr Ala Ser Val Pro Leu Thr Arg Ile Arg Asp Ile Ala His Arg
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Asn Asp Ile Pro His Asp Leu Lys Gln Glu Ile Lys His Thr Ile Gln
 385 390 395 400

Asn Lys Leu His Arg Asn Ala Gly Pro Glu Asp Leu Ile Ala Thr Glu
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Val Met Leu Ala Arg Ile Thr Lys Thr Pro Gly Glu Tyr Ser Glu Thr
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Phe Val Glu Gln Phe Thr Ile Phe Tyr Ser Glu Leu Lys Asp Phe Phe
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Asn Ala Gly Ser Leu Phe Glu Gln Leu Glu Ser Ile Lys Glu Ser Leu
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Asn Glu Ser Gly Leu Glu Val Leu Ser Ser Phe Val Glu Thr Lys Arg
 465 470 475 480

Ser Leu Asp Gln Val Asp His Ala Glu Asp Leu Asp Lys Asn Asp Thr
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 Val Leu Met Lys Gly Leu Glu Ser Gly Leu Arg Asn Asp Ala Pro Asp
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 Asn Ala Ile Ala Met Arg Gln Lys Trp Arg Leu Cys Glu Ile Ser Leu
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 Glu Asp Tyr Ser Phe Val Leu Leu Ser Arg Phe Ile Asn Thr Leu Glu
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 Ala Leu Gly Gly Ser Ala Ser Leu Ala Lys Asp Val Ala Arg Asn Thr
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 Val Ser Phe Ser Gly Trp Lys Thr Asp Glu Cys Ile Ala Ile Gly Asn
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 Glu Ile Leu Ser Trp Lys Gln Lys Gly Leu Ser Glu Ser Glu Gly Cys
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 Glu Asp Gly Lys Tyr Ile Trp Ser Leu Arg Leu Lys Ala Thr Leu Asp
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 Arg Ala Arg Arg Leu Thr Glu Glu Tyr Ser Glu Ala Leu Leu Ser Ile
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 Phe Pro Glu Lys Val Met Val Ile Gly Lys Ala Leu Gly Ile Pro Asp
 660 665 670
 Asn Ser Val Arg Thr Tyr Thr Glu Ala Glu Ile Arg Ala Gly Ile Val
 675 680 685
 Phe Gln Val Ser Lys Leu Cys Thr Val Leu Gln Lys Ala Ile Arg Glu
 690 695 700
 Val Leu Gly Ser Thr Gly Trp Asp Val Leu Val Pro Gly Val Ala His
 705 710 715 720
 Gly Thr Leu Met Arg Val Glu Arg Ile Leu Pro Gly Ser Leu Pro Ser
 725 730 735
 Ser Val Lys Glu Pro Val Val Leu Ile Val Asp Lys Ala Asp Gly Asp
 740 745 750
 Glu Glu Val Lys Ala Ala Gly Asp Asn Ile Val Gly Val Ile Leu Leu
 755 760 765

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Gln Glu Leu Pro His Leu Ser His Leu Gly Val Arg Ala Arg Gln Glu
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 Val Asn Leu Ser Ile Val Ser Glu Lys Asn Asp Asn Ala Val Ser Thr
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 Glu Pro Asn Ser Thr Gly Asn Pro Phe Gln Gln Lys Leu Gln Asn Glu
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 Phe Ser Leu Pro Ser Asp Ile Glu Met Pro Leu Gln Met Ser Lys Gln
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 Lys Ser Lys Ser Gly Val Asn Gly Ser Phe Ala Ala Leu Glu Leu Ser
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 Val Pro Ala Ala Phe Arg Val Pro Ser Gly Ala Val Ile Pro Phe Gly
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 Ser Met Glu Asp Ala Leu Lys Lys Ser Gly Ser Leu Glu Ser Phe Thr
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 Ser Leu Leu Glu Lys Ile Glu Thr Ala Lys Val Glu Asn Gly Glu Val
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 Asp Pro Cys Ala Phe Gly Ala Ala Val Gly Lys Val Trp Ala Ser
 1025 1030 1035

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 Cys Asn Lys Phe Asp Gly Lys Val Ala Thr Leu Ala Phe Ser Asn
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tcgtatatatt accatccact tatcgtttca tgctccaatt actctgagct aagaagtgta      240
cttattgtag aggaat atg agc aat agc ata ggc cgt aat gta ctc cac cag      292
                Met Ser Asn Ser Ile Gly Arg Asn Val Leu His Gln
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Ser Leu Leu Cys Ser Thr Val Phe Glu His Gln Ser Asn Arg His Ser
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Ser Gly Ile Pro Ala Asn Ser Leu Phe Gln Ala Val Ser Ile Asn Gln
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ccg gcg ggg gcg tcg gca gca cgc aag tcg cct tta tct acc aaa ttt      436
Pro Ala Gly Ala Ser Ala Ala Arg Lys Ser Pro Leu Ser Thr Lys Phe
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Tyr Gly Thr Ser Leu Asn Ala Arg Pro Lys Met Ala Met Gly Arg His
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cgc cct gtt ttg atc act cca cgt gct gta tta gcc gtg gat tca gct      532
Arg Pro Val Leu Ile Thr Pro Arg Ala Val Leu Ala Val Asp Ser Ala
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Ser Glu Leu Ala Gly Lys Phe Asn Leu Glu Gly Asn Val Glu Leu Gln
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Ile Thr Val Gly Ala Pro Thr Pro Gly Ser Leu Thr Gln Val Asn Ile
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				160					165					170			
ggt tcc aaa tct ctc gtt aaa tta gag ata gat gat cct gca ata gaa	Gly	Ser	Lys	Ser	Leu	Val	Lys	Leu	Glu	Ile	Asp	Asp	Pro	Ala	Ile	Glu	820
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gca gta gag ttt ctt ata ctc gat gaa gcc cag aat aaa tgg ttc aaa	Ala	Val	Glu	Phe	Leu	Ile	Leu	Asp	Glu	Ala	Gln	Asn	Lys	Trp	Phe	Lys	868
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	205					210					215					220	
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				240					245					250			
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	365					370					375					380	
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ccc aca gag aag aag aat att tca gtt gaa cca aaa gcc ttg aca cca	Pro	Thr	Glu	Lys	Lys	Asn	Ile	Ser	Val	Glu	Pro	Lys	Ala	Leu	Thr	Pro	1492

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		415					420					425				
ctt	aac	aag	aag	atc	tac	aag	ctt	gct	ggc	aaa	gaa	ctt	ctg	gta	ctt	1588
Leu	Asn	Lys	Lys	Ile	Tyr	Lys	Leu	Ala	Gly	Lys	Glu	Leu	Leu	Val	Leu	
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gtg	cac	aag	cct	ggg	ggc	aag	acc	aaa	att	cac	cta	gct	act	gat	ggc	1636
Val	His	Lys	Pro	Gly	Gly	Lys	Thr	Lys	Ile	His	Leu	Ala	Thr	Asp	Gly	
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aaa	gag	cca	ctc	att	ctc	cac	tgg	gct	ttg	tct	aag	aag	gct	gga	gaa	1684
Lys	Glu	Pro	Leu	Ile	Leu	His	Trp	Ala	Leu	Ser	Lys	Lys	Ala	Gly	Glu	
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tgg	ttg	gct	ccg	cct	cca	agt	gta	ctg	cct	gca	ggg	tca	ggt	ttg	ctg	1732
Trp	Leu	Ala	Pro	Pro	Pro	Ser	Val	Leu	Pro	Ala	Gly	Ser	Val	Leu	Leu	
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Ser	Gly	Ser	Val	Glu	Thr	Thr	Phe	Thr	Thr	Ser	Ser	Leu	Ala	Asp	Leu	
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Lys	Gly	Ser	Asp	Phe	Tyr	Val	Asp	Phe	Ser	Tyr	Glu	Ser	Lys	Gln	Val	
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Gln	Gln	Asp	Phe	Gly	Asp	Gly	Lys	Gly	Thr	Ala	Lys	Ala	Leu	Leu	Glu	
			560				565						570			
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Leu	Gly	Phe	Ala	Gly	Ile	Leu	Val	Trp	Met	Arg	Phe	Met	Ala	Thr	Arg	
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Gln	Leu	Ile	Trp	Asn	Lys	Asn	Tyr	Asn	Val	Lys	Pro	Arg	Glu	Ile	Ser	
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Lys	Ala	Gln	Asp	Arg	Leu	Thr	Asp	Leu	Leu	Gln	Asn	Val	Tyr	Ile	Ser	
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aat	cca	gag	tat	agg	gaa	att	gtg	cgc	atg	att	ttg	tct	act	gtt	ggc	2260
Asn	Pro	Glu	Tyr	Arg	Glu	Ile	Val	Arg	Met	Ile	Leu	Ser	Thr	Val	Gly	
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cgt	gga	ggg	gaa	gga	gat	gtg	gga	cag	cga	att	cgc	gat	gaa	atc	ctg	2308
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Gln Ala Leu Ile Asp Tyr Ile Lys Ser Asp Phe Asp Ile Ser Ala Tyr																	
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Val His Ser Gly Ala Asp Leu Glu Ser Ala Ile Thr Asn Cys Leu Gly																	
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Lys Ser Val Leu Asp Arg Thr Arg Leu Ala Leu Ala Gly Lys Ala Asp																	

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Ala Val Leu Thr Ala Asp Met Pro Asp Val Leu Ser His Val Ser	
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gtt cga gct aga aat tgc aag gtt tgc ttc gct aca tgc ttt gat	3538
Val Arg Ala Arg Asn Cys Lys Val Cys Phe Ala Thr Cys Phe Asp	
1080 1085 1090	
ccc aat atc ttg gct gac cta caa tca aat gaa ggg aaa atg ctg	3583
Pro Asn Ile Leu Ala Asp Leu Gln Ser Asn Glu Gly Lys Met Leu	
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cac cta aaa cca aca tct gct gat att gca tat agt gtg gtg gag	3628
His Leu Lys Pro Thr Ser Ala Asp Ile Ala Tyr Ser Val Val Glu	
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Gly Ser Glu Leu Gln Asp Ser Ser Ser Ala Asn Leu Lys Glu Glu	
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Asp Gly Pro Ser Ser Ser Val Ala Leu Val Lys Lys Gln Phe Ala	
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Gly Arg Tyr Ala Ile Thr Ser Asp Glu Phe Thr Gly Glu Leu Val	
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ggt gct aaa tca cgt aat att gca tat ctg aaa gga aaa gta ccg	3808
Gly Ala Lys Ser Arg Asn Ile Ala Tyr Leu Lys Gly Lys Val Pro	
1170 1175 1180	
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Ser Trp Ile Gly Ile Pro Thr Ser Val Ala Leu Pro Phe Gly Val	
1185 1190 1195	
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Phe Glu Lys Val Leu Ser Asp Asp Ile Asn Gln Ala Val Ala Glu	

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gcc Ala 1230	ctt Leu	agg Arg	gag Glu	att Ile	cgg Arg 1235	gaa Glu	aca Thr	gtt Val	tta Leu	cag Gln 1240	atg Met	aaa Lys	gca Ala	cca Pro	3988
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atg Met 1260	cct Pro	tgg Trp	cct Pro	ggt Gly	gat Asp 1265	gaa Glu	ggt Gly	gag Glu	cag Gln	cgc Arg 1270	tgg Trp	gag Glu	caa Gln	gca Ala	4078
tgg Trp 1275	atg Met	gct Ala	atc Ile	aag Lys	aag Lys 1280	gtc Val	tgg Trp	gct Ala	tca Ser	aaa Lys 1285	tgg Trp	aat Asn	gag Glu	aga Arg	4123
gca Ala 1290	ttc Phe	ttc Phe	agc Ser	aca Thr	agg Arg 1295	aga Arg	gta Val	aaa Lys	tta Leu	gat Asp 1300	cat His	gaa Glu	tat Tyr	ctc Leu	4168
tgc Cys 1305	atg Met	gct Ala	gtc Val	ctg Leu	gtt Val 1310	cag Gln	gaa Glu	ata Ile	atc Ile	aat Asn 1315	gct Ala	gac Asp	tat Tyr	gca Ala	4213
ttt Phe 1320	gtt Val	atc Ile	cat His	aca Thr	act Thr 1325	aat Asn	ccc Pro	tct Ser	tca Ser	gga Gly 1330	gat Asp	tca Ser	tca Ser	gaa Glu	4258
ata Ile 1335	tat Tyr	gct Ala	gag Glu	gtg Val	gtg Val 1340	aag Lys	gga Gly	ctt Leu	gga Gly	gaa Glu 1345	act Thr	ctc Leu	gtt Val	gga Gly	4303
gct Ala 1350	tat Tyr	cca Pro	ggc Gly	cgt Arg	gct Ala 1355	ttg Leu	agt Ser	ttt Phe	gtc Val	tgc Cys 1360	aag Lys	aaa Lys	aat Asn	gat Asp	4348
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ctt Leu 1380	ttt Phe	ata Ile	aga Arg	cga Arg	tca Ser 1385	atc Ile	atc Ile	ttc Phe	cga Arg	tct Ser 1390	gat Asp	tcc Ser	aat Asn	ggt Gly	4438
gaa Glu 1395	gat Asp	ctg Leu	gaa Glu	ggt Gly	tat Tyr 1400	gct Ala	ggt Gly	gct Ala	ggc Gly	ctt Leu 1405	tat Tyr	gat Asp	agt Ser	gtg Val	4483
cca Pro 1410	atg Met	gat Asp	gaa Glu	gcc Ala	gag Glu 1415	aaa Lys	gtt Val	gtg Val	ctt Leu	gat Asp 1420	tac Tyr	tct Ser	tca Ser	gac Asp	4528
cat His 1425	ctg Leu	atc Ile	act Thr	gac Asp	gga Gly 1430	cac His	ttc Phe	cag Gln	caa Gln	tca Ser 1435	att Ile	ctc Leu	tct Ser	tcc Ser	4573
att Ile 1440	gct Ala	cgt Arg	gca Ala	gga Gly	tgt Cys 1445	gag Glu	att Ile	gag Glu	gag Glu	cta Leu 1450	ttt Phe	gga Gly	tct Ser	gca Ala	4618
caa Gln	gac Asp	att Ile	gaa Glu	ggt Gly	gtg Val	gtt Val	agg Arg	gat Asp	ggg Gly	aaa Lys	ata Ile	tat Tyr	gtt Val	gtc Val	4663

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1455 1460 1465

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 Gln Thr Arg Pro Gln Met
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<210> 7

<211> 1475

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<213> Citrus reticulata

<400> 7

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 35 40 45

Ser Ala Ala Arg Lys Ser Pro Leu Ser Thr Lys Phe Tyr Gly Thr Ser
 50 55 60

Leu Asn Ala Arg Pro Lys Met Ala Met Gly Arg His Arg Pro Val Leu
 65 70 75 80

Ile Thr Pro Arg Ala Val Leu Ala Val Asp Ser Ala Ser Glu Leu Ala
 85 90 95

Gly Lys Phe Asn Leu Glu Gly Asn Val Glu Leu Gln Ile Thr Val Gly
 100 105 110

Ala Pro Thr Pro Gly Ser Leu Thr Gln Val Asn Ile Glu Ile Ser Tyr
 115 120 125

Ser Ser Asn Ser Leu Leu Leu His Trp Gly Ala Ile Arg Asp Lys Lys
 130 135 140

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Glu Lys Trp Val Leu Pro Ser Arg Pro Pro Asp Gly Thr Lys Ile Leu
 145 150 155 160

Lys Asn Arg Ala Leu Arg Thr Pro Phe Val Ser Ser Gly Ser Lys Ser
 165 170 175

Leu Val Lys Leu Glu Ile Asp Asp Pro Ala Ile Glu Ala Val Glu Phe
 180 185 190

Leu Ile Leu Asp Glu Ala Gln Asn Lys Trp Phe Lys Asn Asn Gly Ala
 195 200 205

Asn Phe His Val Lys Leu Pro Ser Glu Arg Ser Leu Ile Gln Asn Val
 210 215 220

Ser Val Pro Glu Asp Leu Val Gln Thr Gln Ala Tyr Leu Arg Trp Glu
 225 230 235 240

Arg Lys Gly Lys Gln Ile Tyr Thr Pro Glu Gln Glu Lys Glu Glu Tyr
 245 250 255

Glu Ala Ala Arg Thr Glu Leu Leu Glu Glu Ile Val Arg Gly Thr Ser
 260 265 270

Val Glu Asp Leu Arg Ala Lys Leu Thr Asn Lys Asn Asp Arg Gln Glu
 275 280 285

Ile Lys Glu Ser Ser Ser His Gly Thr Lys Asn Ala Ile Pro Asp Asp
 290 295 300

Leu Val Gln Ile Gln Ser Tyr Ile Arg Trp Glu Arg Ala Gly Lys Pro
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Asn Tyr Ser Ala Asp Gln Gln Leu Arg Glu Phe Glu Glu Ala Arg Lys
 325 330 335

Glu Leu Gln Ser Glu Leu Glu Lys Gly Ile Ser Leu Asp Glu Ile Trp
 340 345 350

Lys Lys Ile Thr Lys Gly Glu Ile Gln Thr Lys Val Ser Asp Gln Leu
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Lys Thr Lys Lys Tyr Phe Arg Thr Glu Arg Ile Gln Arg Lys Gln Arg
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Asp Phe Met Gln Ile Leu Asn Lys His Val Ala Glu Pro Thr Glu Lys
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Lys Asn Ile Ser Val Glu Pro Lys Ala Leu Thr Pro Val Glu Leu Phe
 405 410 415

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Val Gly Ala Thr Glu Glu Gln Glu Gly Asp Ser Ile Leu Asn Lys Lys
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Ile Tyr Lys Leu Ala Gly Lys Glu Leu Leu Val Leu Val His Lys Pro
 435 440 445

Gly Gly Lys Thr Lys Ile His Leu Ala Thr Asp Gly Lys Glu Pro Leu
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Ile Leu His Trp Ala Leu Ser Lys Lys Ala Gly Glu Trp Leu Ala Pro
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Pro Pro Ser Val Leu Pro Ala Gly Ser Val Leu Leu Ser Gly Ser Val
 485 490 495

Glu Thr Thr Phe Thr Thr Ser Ser Leu Ala Asp Leu Pro Tyr Gln Val
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Gln Ser Ile Glu Ile Glu Ile Glu Glu Glu Gly Tyr Val Gly Met Pro
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Ser Val Leu Gln Ser Gly Gly Asn Trp Ile Lys Asn Lys Gly Ser Asp
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Phe Tyr Val Asp Phe Ser Tyr Glu Ser Lys Gln Val Gln Gln Asp Phe
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Gly Asp Gly Lys Gly Thr Ala Lys Ala Leu Leu Glu Lys Ile Ala Gly
 565 570 575

Leu Glu Ile Glu Ala Gln Lys Ser Phe Met His Arg Phe Asn Ile Ala
 580 585 590

Ala Asp Leu Ile Gln Glu Ala Lys Glu Ala Gly Glu Leu Gly Phe Ala
 595 600 605

Gly Ile Leu Val Trp Met Arg Phe Met Ala Thr Arg Gln Leu Ile Trp
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Asn Lys Asn Tyr Asn Val Lys Pro Arg Glu Ile Ser Lys Ala Gln Asp
 625 630 635 640

Arg Leu Thr Asp Leu Leu Gln Asn Val Tyr Ile Ser Asn Pro Glu Tyr
 645 650 655

Arg Glu Ile Val Arg Met Ile Leu Ser Thr Val Gly Arg Gly Gly Glu
 660 665 670

Gly Asp Val Gly Gln Arg Ile Arg Asp Glu Ile Leu Val Ile Gln Arg
 675 680 685

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Asn Asn Asn Cys Lys Gly Gly Met Met Glu Glu Trp His Gln Lys Leu
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 His Asn Asn Thr Ser Pro Asp Asp Val Ile Ile Cys Gln Ala Leu Ile
 705 710 715 720
 Asp Tyr Ile Lys Ser Asp Phe Asp Ile Ser Ala Tyr Trp Lys Thr Leu
 725 730 735
 Asn Asp Asn Gly Ile Thr Lys Glu Arg Leu Leu Ser Tyr Asp Arg Ala
 740 745 750
 Ile His Ser Glu Pro Asn Phe Arg Arg Asp Gln Lys Asp Gly Leu Leu
 755 760 765
 Arg Asp Leu Gly Asn Tyr Met Arg Thr Leu Lys Ala Val His Ser Gly
 770 775 780
 Ala Asp Leu Glu Ser Ala Ile Thr Asn Cys Leu Gly Tyr Arg Ser Glu
 785 790 795 800
 Gly Gln Gly Phe Met Val Gly Val Gln Ile Asn Pro Ile Pro Asn Leu
 805 810 815
 Pro Ser Gly Phe Pro Glu Leu Leu Gln Phe Val Ser Glu His Val Glu
 820 825 830
 Asp Arg Asn Val Glu Ala Leu Leu Glu Gly Leu Leu Glu Ala Arg Gln
 835 840 845
 Glu Ile Arg Pro Leu Leu Cys Lys His Asn Asp Arg Leu Lys Asp Leu
 850 855 860
 Leu Phe Leu Asp Ile Ala Leu Glu Ser Ser Val Arg Thr Ala Ile Glu
 865 870 875 880
 Lys Gly Tyr Glu Glu Leu Asn Glu Ala Gly Pro Glu Lys Ile Met Tyr
 885 890 895
 Phe Val Ser Leu Ile Leu Glu Asn Leu Ala Leu Ser Leu Asp Asp Asn
 900 905 910
 Glu Asp Leu Ile Tyr Cys Leu Lys Gly Trp Ser Asn Ala Leu Ser Met
 915 920 925
 Ser Lys Ser Lys Ser Asp Asn Trp Ala Leu Phe Ala Lys Ser Val Leu
 930 935 940
 Asp Arg Thr Arg Leu Ala Leu Ala Gly Lys Ala Asp Trp Tyr Gln Lys
 945 950 955 960

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Val Leu Gln Pro Ser Ala Glu Tyr Leu Gly Thr Leu Leu Ser Val Asp
 965 970 975

Lys Trp Ala Val Asp Ile Phe Thr Glu Glu Met Ile Arg Ala Gly Ser
 980 985 990

Ala Ala Ala Leu Ser Leu Leu Leu Asn Arg Leu Asp Pro Val Leu Arg
 995 1000 1005

Lys Thr Ala Ser Leu Gly Ser Trp Gln Val Ile Ser Pro Val Glu
 1010 1015 1020

Val Phe Gly Tyr Val Ala Val Val Asp Glu Leu Leu Ala Val Gln
 1025 1030 1035

Asp Lys Ser Tyr Asp Gln Pro Thr Ile Leu Leu Ala Arg Arg Val
 1040 1045 1050

Lys Gly Glu Glu Glu Ile Pro His Gly Thr Val Ala Val Leu Thr
 1055 1060 1065

Ala Asp Met Pro Asp Val Leu Ser His Val Ser Val Arg Ala Arg
 1070 1075 1080

Asn Cys Lys Val Cys Phe Ala Thr Cys Phe Asp Pro Asn Ile Leu
 1085 1090 1095

Ala Asp Leu Gln Ser Asn Glu Gly Lys Met Leu His Leu Lys Pro
 1100 1105 1110

Thr Ser Ala Asp Ile Ala Tyr Ser Val Val Glu Gly Ser Glu Leu
 1115 1120 1125

Gln Asp Ser Ser Ser Ala Asn Leu Lys Glu Glu Asp Gly Pro Ser
 1130 1135 1140

Ser Ser Val Ala Leu Val Lys Lys Gln Phe Ala Gly Arg Tyr Ala
 1145 1150 1155

Ile Thr Ser Asp Glu Phe Thr Gly Glu Leu Val Gly Ala Lys Ser
 1160 1165 1170

Arg Asn Ile Ala Tyr Leu Lys Gly Lys Val Pro Ser Trp Ile Gly
 1175 1180 1185

Ile Pro Thr Ser Val Ala Leu Pro Phe Gly Val Phe Glu Lys Val
 1190 1195 1200

Leu Ser Asp Asp Ile Asn Gln Ala Val Ala Glu Lys Leu Gln Ile
 1205 1210 1215

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Leu Lys Gln Lys Leu Gly Glu Glu Asp His Ser Ala Leu Arg Glu
 1220 1225 1230
 Ile Arg Glu Thr Val Leu Gln Met Lys Ala Pro Asn Gln Leu Val
 1235 1240 1245
 Gln Glu Leu Lys Thr Glu Met Lys Ser Ser Gly Met Pro Trp Pro
 1250 1255 1260
 Gly Asp Glu Gly Glu Gln Arg Trp Glu Gln Ala Trp Met Ala Ile
 1265 1270 1275
 Lys Lys Val Trp Ala Ser Lys Trp Asn Glu Arg Ala Phe Phe Ser
 1280 1285 1290
 Thr Arg Arg Val Lys Leu Asp His Glu Tyr Leu Cys Met Ala Val
 1295 1300 1305
 Leu Val Gln Glu Ile Ile Asn Ala Asp Tyr Ala Phe Val Ile His
 1310 1315 1320
 Thr Thr Asn Pro Ser Ser Gly Asp Ser Ser Glu Ile Tyr Ala Glu
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 Val Val Lys Gly Leu Gly Glu Thr Leu Val Gly Ala Tyr Pro Gly
 1340 1345 1350
 Arg Ala Leu Ser Phe Val Cys Lys Lys Asn Asp Leu Lys Ser Pro
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 Arg Val Leu Gly Tyr Pro Ser Lys Pro Ile Gly Leu Phe Ile Arg
 1370 1375 1380
 Arg Ser Ile Ile Phe Arg Ser Asp Ser Asn Gly Glu Asp Leu Glu
 1385 1390 1395
 Gly Tyr Ala Gly Ala Gly Leu Tyr Asp Ser Val Pro Met Asp Glu
 1400 1405 1410
 Ala Glu Lys Val Val Leu Asp Tyr Ser Ser Asp His Leu Ile Thr
 1415 1420 1425
 Asp Gly His Phe Gln Gln Ser Ile Leu Ser Ser Ile Ala Arg Ala
 1430 1435 1440
 Gly Cys Glu Ile Glu Glu Leu Phe Gly Ser Ala Gln Asp Ile Glu
 1445 1450 1455
 Gly Val Val Arg Asp Gly Lys Ile Tyr Val Val Gln Thr Arg Pro
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Gln Met
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Pro Leu Asn Phe Glu His Gln Asn Lys Leu Asn Ser Ser Val Tyr Gln	
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Thr Ser Thr Ala Asn Pro Ala Leu Gly Lys Ile Gly Arg Ser Lys Leu	
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Tyr Gly Lys Gly Leu Lys Gln Ala Gly Arg Ser Leu Val Thr Glu Thr	
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Gly Gly Arg Pro Leu Ser Phe Val Pro Arg Ala Val Leu Ala Met Asp	
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Pro Gln Ala Ala Glu Lys Phe Ser Leu Asp Gly Asn Ile Asp Leu Leu	
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Tyr Thr Ser Asp Thr Leu Phe Leu His Trp Gly Ala Ile Leu Asp Asn	
115 120 125	
aaa gaa aat tgg gtt cta cct tct cgc tct ccg gat aga act caa aac	432
Lys Glu Asn Trp Val Leu Pro Ser Arg Ser Pro Asp Arg Thr Gln Asn	

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Gln	Asn	Phe	His	Ile	Asn	Leu	Pro	Thr	Glu	Arg	Asn	Val	Lys	Gln	Asn	
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Ser	Leu	Thr	Thr	Leu	Glu	Ile	Tyr	Ala	Lys	Ala	Lys	Glu	Glu	Gln	Glu	
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Thr	Thr	Pro	Val	Phe	Ser	Lys	Lys	Thr	Phe	Lys	Leu	Glu	Gly	Ser	Ala	
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Ile	Leu	Val	Phe	Val	Thr	Lys	Leu	Ser	Gly	Lys	Thr	Lys	Ile	His	Val	
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Ala	Thr	Asp	Phe	Lys	Glu	Pro	Val	Thr	Leu	His	Trp	Ala	Leu	Ser	Gln	
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Lys	Gly	Gly	Glu	Trp	Leu	Asp	Pro	Pro	Ser	Asp	Ile	Leu	Pro	Pro	Asn	

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405				410				415								
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Asp	Ser	Tyr	Lys	Gly	Met	Pro	Phe	Val	Leu	Asn	Ala	Gly	Glu	Arg	Trp	
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465					470					475					480	
aaa	cat	gtt	cag	aag	gat	tat	ggc	gat	gga	aag	gg	aca	gcc	aag	cat	1488
Lys	His	Val	Gln	Lys	Asp	Tyr	Gly	Asp	Gly	Lys	Gly	Thr	Ala	Lys	His	
				485					490					495		
tta	ctg	gac	aaa	atc	gca	gat	ttg	gag	agt	gag	gcc	cag	aag	tct	ttc	1536
Leu	Leu	Asp	Lys	Ile	Ala	Asp	Leu	Glu	Ser	Glu	Ala	Gln	Lys	Ser	Phe	
			500					505					510			
atg	cat	cga	ttc	aac	att	gca	gca	gat	ctt	gtg	gac	gag	gca	aaa	agt	1584
Met	His	Arg	Phe	Asn	Ile	Ala	Ala	Asp	Leu	Val	Asp	Glu	Ala	Lys	Ser	
		515					520					525				
gct	gg	caa	ctg	ggc	ttt	gca	ggg	atc	cta	gtc	tgg	atg	agg	ttt	atg	1632
Ala	Gly	Gln	Leu	Gly	Phe	Ala	Gly	Ile	Leu	Val	Trp	Met	Arg	Phe	Met	
	530					535					540					
gct	aca	aga	cag	ctt	gtg	tgg	aac	aaa	aac	tat	aat	gtt	aag	cca	agg	1680
Ala	Thr	Arg	Gln	Leu	Val	Trp	Asn	Lys	Asn	Tyr	Asn	Val	Lys	Pro	Arg	
545					550					555					560	
gag	ata	agc	aaa	gcg	cag	gat	aga	ctg	act	gac	ctt	ctc	cag	gac	gtt	1728
Glu	Ile	Ser	Lys	Ala	Gln	Asp	Arg	Leu	Thr	Asp	Leu	Leu	Gln	Asp	Val	
				565					570					575		
tat	gca	agt	tat	cca	gag	tac	aga	gaa	ctt	ttg	cgg	atg	ata	atg	tct	1776
Tyr	Ala	Ser	Tyr	Pro	Glu	Tyr	Arg	Glu	Leu	Leu	Arg	Met	Ile	Met	Ser	
			580					585					590			
act	gta	gg	cga	gga	gg	gaa	gga	gat	gtc	ggg	caa	cga	atc	cg	gac	1824
Thr	Val	Gly	Arg	Gly	Gly	Glu	Gly	Asp	Val	Gly	Gln	Arg	Ile	Arg	Asp	
		595					600					605				
gaa	att	cta	gtc	atc	cag	cgg	aaa	aat	gac	tgc	aag	gg	gga	att	atg	1872
Glu	Ile	Leu	Val	Ile	Gln	Arg	Lys	Asn	Asp	Cys	Lys	Gly	Gly	Ile	Met	
	610					615					620					
gag	gaa	tgg	cat	cag	aag	ttg	cat	aac	aac	act	agt	cca	gat	gat	gtt	1920
Glu	Glu	Trp	His	Gln	Lys	Leu	His	Asn	Asn	Thr	Ser	Pro	Asp	Asp	Val	
625					630					635					640	
gtc	atc	tgt	cag	gca	ttg	atg	gat	tat	atc	aaa	agt	gac	ttt	gac	tta	1968
Val	Ile	Cys	Gln	Ala	Leu	Met	Asp	Tyr	Ile	Lys	Ser	Asp	Phe	Asp	Leu	
				645					650					655		
agt	gtt	tac	tgg	aag	acc	ttg	aac	gat	aat	ggc	ata	acc	aaa	gag	cga	2016
Ser	Val	Tyr	Trp	Lys	Thr	Leu	Asn	Asp	Asn	Gly	Ile	Thr	Lys	Glu	Arg	
			660					665					670			
ctc	tta	agt	tat	gat	cg	gct	ata	cat	tct	gaa	cca	aat	ttt	aga	gga	2064
Leu	Leu	Ser	Tyr	Asp	Arg	Ala	Ile	His	Ser	Glu	Pro	Asn	Phe	Arg	Gly	

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675				680				685								
gaa	caa	aaa	gac	ggt	ctt	ttg	cgt	gat	ctt	gga	cac	tac	atg	agg	act	2112
Glu	Gln	Lys	Asp	Gly	Leu	Leu	Arg	Asp	Leu	Gly	His	Tyr	Met	Arg	Thr	
	690					695					700					
tta	aag	gct	gtt	cat	tca	ggg	gca	gac	ctt	gag	tcg	gct	ata	caa	aat	2160
Leu	Lys	Ala	Val	His	Ser	Gly	Ala	Asp	Leu	Glu	Ser	Ala	Ile	Gln	Asn	
705					710					715					720	
tgc	atg	ggc	tac	caa	gat	gac	ggt	gaa	ggt	ttc	atg	gtt	ggg	gtg	cag	2208
Cys	Met	Gly	Tyr	Gln	Asp	Asp	Gly	Glu	Gly	Phe	Met	Val	Gly	Val	Gln	
				725					730					735		
ata	aat	cct	gta	tca	gga	ttg	cct	tct	gga	tat	cca	gac	ttg	ctt	cgt	2256
Ile	Asn	Pro	Val	Ser	Gly	Leu	Pro	Ser	Gly	Tyr	Pro	Asp	Leu	Leu	Arg	
			740					745					750			
ttc	gtc	cta	gaa	cat	gtt	gaa	gaa	aag	aat	gta	gag	cca	ctt	ctt	gag	2304
Phe	Val	Leu	Glu	His	Val	Glu	Glu	Lys	Asn	Val	Glu	Pro	Leu	Leu	Glu	
		755				760						765				
ggt	ttg	ctt	gaa	gct	cgt	caa	gag	cta	agg	cca	ctt	ctg	ctg	aag	tcc	2352
Gly	Leu	Leu	Glu	Ala	Arg	Gln	Glu	Leu	Arg	Pro	Leu	Leu	Leu	Lys	Ser	
	770					775					780					
cat	gac	cgc	ctc	aag	gat	ctg	tta	ttc	ttg	gac	ctc	gct	ctt	gat	tct	2400
His	Asp	Arg	Leu	Lys	Asp	Leu	Leu	Phe	Leu	Asp	Leu	Ala	Leu	Asp	Ser	
					790					795					800	
act	gtc	aga	aca	gcg	att	gaa	aga	gga	tat	gag	caa	ttg	aat	gat	gct	2448
Thr	Val	Arg	Thr	Ala	Ile	Glu	Arg	Gly	Tyr	Glu	Gln	Leu	Asn	Asp	Ala	
				805					810					815		
gga	cct	gag	aaa	atc	atg	tac	ttc	atc	agc	cta	gtt	ctt	gaa	aat	ctt	2496
Gly	Pro	Glu	Lys	Ile	Met	Tyr	Phe	Ile	Ser	Leu	Val	Leu	Glu	Asn	Leu	
			820					825					830			
gcc	ctc	tct	tca	gat	gac	aat	gaa	gac	ctt	ata	tac	tgc	ttg	aag	gga	2544
Ala	Leu	Ser	Ser	Asp	Asp	Asn	Glu	Asp	Leu	Ile	Tyr	Cys	Leu	Lys	Gly	
							840					845				
tgg	caa	ttt	gcc	ctc	gac	atg	tgc	aag	agc	aaa	aaa	gat	cac	tgg	gct	2592
Trp	Gln	Phe	Ala	Leu	Asp	Met	Cys	Lys	Ser	Lys	Lys	Asp	His	Trp	Ala	
	850					855					860					
ctg	tat	gca	aaa	tct	gtt	ctt	gac	aga	agc	cga	cta	gca	ctg	gca	agc	2640
Leu	Tyr	Ala	Lys	Ser	Val	Leu	Asp	Arg	Ser	Arg	Leu	Ala	Leu	Ala	Ser	
					870					875					880	
aaa	gct	gag	agg	tac	ctt	gaa	att	ctg	caa	cca	tcg	gct	gaa	tat	ctt	2688
Lys	Ala	Glu	Arg	Tyr	Leu	Glu	Ile	Leu	Gln	Pro	Ser	Ala	Glu	Tyr	Leu	
				885					890					895		
gga	tct	tgt	ctt	gga	gtc	gat	cag	tcg	gct	gtt	agt	ata	ttt	act	gaa	2736
Gly	Ser	Cys	Leu	Gly	Val	Asp	Gln	Ser	Ala	Val	Ser	Ile	Phe	Thr	Glu	
			900					905					910			
gag	atc	att	cga	gct	gga	tct	gca	gca	gca	ttg	tcg	tca	ctt	gtt	aac	2784
Glu	Ile	Ile	Arg	Ala	Gly	Ser	Ala	Ala	Ala	Leu	Ser	Ser	Leu	Val	Asn	
		915					920					925				
cga	ctt	gac	cca	gtt	ctt	agg	aag	act	gct	aac	ttg	gga	agt	tgg	cag	2832
Arg	Leu	Asp	Pro	Val	Leu	Arg	Lys	Thr	Ala	Asn	Leu	Gly	Ser	Trp	Gln	
	930					935					940					
gtt	att	agt	cct	gta	gag	gtc	gtc	gga	tat	gtc	att	gtt	gtg	gac	gaa	2880
Val	Ile	Ser	Pro	Val	Glu	Val	Val	Gly	Tyr	Val	Ile	Val	Val	Asp	Glu	

BCS 04-5003-PCT_Erhöhte Akt. OK1 & R1_SEQUENZPROTOKOLL.ST25																	
945	950					955					960						
ttg ctc act gta cag aat aaa acc tac gat aga cct aca att ata gtt	Leu Leu Thr Val Gln Asn Lys Thr Tyr Asp Arg Pro Thr Ile Ile Val					965					970					2928	
gca aac aga gtg aga gga gag gag gaa atc cct gat ggt gca gtt gcg	Ala Asn Arg Val Arg Gly Glu Glu Glu Ile Pro Asp Gly Ala Val Ala					980					985					2976	
gta ctg aca cct gac atg ccg gat gta cta tct cat gtt tct gtt cga	Val Leu Thr Pro Asp Met Pro Asp Val Leu Ser His Val Ser Val Arg					995					1000					3024	
gca aga aat gga aag atc tgc ttt gcc aca tgt ttt gat tct ggt	Ala Arg Asn Gly Lys Ile Cys Phe Ala Thr Cys Phe Asp Ser Gly					1010					1015					3069	
atc tta tct gac ctc caa gga aaa gat gga aaa ctg ttg agc cta	Ile Leu Ser Asp Leu Gln Gly Lys Asp Gly Lys Leu Leu Ser Leu					1025					1030					3114	
caa cca acc tct gca gat gta gtc tat aaa gag gta aac gat agt	Gln Pro Thr Ser Ala Asp Val Val Tyr Lys Glu Val Asn Asp Ser					1040					1045					3159	
gag ctt tcg agt cca agt tca gac aac ctg gaa gat gcc cct cca	Glu Leu Ser Ser Pro Ser Ser Asp Asn Leu Glu Asp Ala Pro Pro					1055					1060					3204	
agt att tct ttg gtc aag aaa cag ttt gcg ggt aga tat gct ata	Ser Ile Ser Leu Val Lys Lys Gln Phe Ala Gly Arg Tyr Ala Ile					1070					1075					3249	
tca tct gag gag ttc aca agt gac ttg gtt ggt gct aaa tca aga	Ser Ser Glu Glu Phe Thr Ser Asp Leu Val Gly Ala Lys Ser Arg					1085					1090					3294	
aat atc ggg tat ctg aaa gga aaa gtt cct tct tgg gtt ggt atc	Asn Ile Gly Tyr Leu Lys Gly Lys Val Pro Ser Trp Val Gly Ile					1100					1105					3339	
cca act tca gtt gcg ttg cca ttt ggt gtt ttt gag aag gtt atc	Pro Thr Ser Val Ala Leu Pro Phe Gly Val Phe Glu Lys Val Ile					1115					1120					3384	
tcc gaa aag gcg aat cag gcg gtg aac gat aaa ttg cta gta ttg	Ser Glu Lys Ala Asn Gln Ala Val Asn Asp Lys Leu Leu Val Leu					1130					1135					3429	
aag aaa act ctt gat gag gga gac caa ggt gct ctg aag gaa atc	Lys Lys Thr Leu Asp Glu Gly Asp Gln Gly Ala Leu Lys Glu Ile					1145					1150					3474	
cgg cag aca ctg ttg ggg cta gtt gca ccc cca gaa ctg gtt gaa	Arg Gln Thr Leu Leu Gly Leu Val Ala Pro Pro Glu Leu Val Glu					1160					1165					3519	
gaa ctg aaa agt act atg aaa agt tct gac atg cca tgg ccg ggt	Glu Leu Lys Ser Thr Met Lys Ser Ser Asp Met Pro Trp Pro Gly					1175					1180					3564	
gat gaa ggt gaa cag aga tgg gag caa gct tgg gca gcc att aaa	Asp Glu Gly Glu Gln Arg Trp Glu Gln Ala Trp Ala Ile Lys					1190					1195					3609	
aag gtc tgg gct tcg aaa tgg aac gag aga gca tac ttc agc acg	Lys Val Trp Ala Ser Lys Trp Asn Glu Arg Ala Tyr Phe Ser Thr					1200										3654	

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1205		1210	1215	
agg aaa gta aaa ctg gat cat gac tat ctc tgc atg gct gtt ttg	3699			
Arg Lys Val Lys Leu Asp His Asp Tyr Leu Cys Met Ala Val Leu				
1220	1225	1230		
gtc caa gaa gtc atc aat gcg gat tac gca ttc gtc att cac aca	3744			
Val Gln Glu Val Ile Asn Ala Asp Tyr Ala Phe Val Ile His Thr				
1235	1240	1245		
act aat cca tct tct gga gat tca tca gag att tat gcc gag gtg	3789			
Thr Asn Pro Ser Ser Gly Asp Ser Ser Glu Ile Tyr Ala Glu Val				
1250	1255	1260		
gtc aaa ggc ctt ggg gaa act ctt gta gga gca tat ccc ggt cgg	3834			
Val Lys Gly Leu Gly Glu Thr Leu Val Gly Ala Tyr Pro Gly Arg				
1265	1270	1275		
tct ctg agt ttc atc tgc aag aaa aac aac ctt gat tcg cct ctg	3879			
Ser Leu Ser Phe Ile Cys Lys Lys Asn Asn Leu Asp Ser Pro Leu				
1280	1285	1290		
gtg ttg ggc tac cca agc aaa ccg att ggg ctg ttc ata aga cgt	3924			
Val Leu Gly Tyr Pro Ser Lys Pro Ile Gly Leu Phe Ile Arg Arg				
1295	1300	1305		
tca atc atc ttc aga tct gat tcc aat gga gaa gat ctt gaa ggt	3969			
Ser Ile Ile Phe Arg Ser Asp Ser Asn Gly Glu Asp Leu Glu Gly				
1310	1315	1320		
tat gca ggt gca ggc ctc tac gac agt gta cca atg gac gag gaa	4014			
Tyr Ala Gly Ala Gly Leu Tyr Asp Ser Val Pro Met Asp Glu Glu				
1325	1330	1335		
gac caa gtc gtg ctc gat tac aca aca gat cct ctg atc act gac	4059			
Asp Gln Val Val Leu Asp Tyr Thr Thr Asp Pro Leu Ile Thr Asp				
1340	1345	1350		
ttg agc ttc cag aaa aag gtt ctc tca gac att gca cgc gct gga	4104			
Leu Ser Phe Gln Lys Lys Val Leu Ser Asp Ile Ala Arg Ala Gly				
1355	1360	1365		
gat gcc att gag aaa ctc tat gga act gca cag gac att gaa ggt	4149			
Asp Ala Ile Glu Lys Leu Tyr Gly Thr Ala Gln Asp Ile Glu Gly				
1370	1375	1380		
gtg atc aga gac ggg aag ctc tat gtc gtc cag aca cga cca caa	4194			
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BCS 04-5003-PCT_Erhöhte Akt. OK1 & R1_SEQUENZPROTOKOLL.ST25
 275 280 285

Lys Lys Val Ser Lys Gln Pro Glu Arg Lys Lys Asn Tyr Asn Thr Asp
 290 295 300

Lys Ile Gln Arg Lys Gly Arg Asp Leu Thr Lys Leu Ile Tyr Lys His
 305 310 315 320

Val Ala Asp Phe Val Glu Pro Glu Ser Lys Ser Ser Ser Glu Pro Arg
 325 330 335

Ser Leu Thr Thr Leu Glu Ile Tyr Ala Lys Ala Lys Glu Glu Gln Glu
 340 345 350

Thr Thr Pro Val Phe Ser Lys Lys Thr Phe Lys Leu Glu Gly Ser Ala
 355 360 365

Ile Leu Val Phe Val Thr Lys Leu Ser Gly Lys Thr Lys Ile His Val
 370 375 380

Ala Thr Asp Phe Lys Glu Pro Val Thr Leu His Trp Ala Leu Ser Gln
 385 390 395 400

Lys Gly Gly Glu Trp Leu Asp Pro Pro Ser Asp Ile Leu Pro Pro Asn
 405 410 415

Ser Leu Pro Val Arg Gly Ala Val Asp Thr Lys Leu Thr Ile Thr Ser
 420 425 430

Thr Asp Leu Pro Ser Pro Val Gln Thr Phe Glu Leu Glu Ile Glu Gly
 435 440 445

Asp Ser Tyr Lys Gly Met Pro Phe Val Leu Asn Ala Gly Glu Arg Trp
 450 455 460

Ile Lys Asn Asn Asp Ser Asp Phe Tyr Val Asp Phe Ala Lys Glu Glu
 465 470 475 480

Lys His Val Gln Lys Asp Tyr Gly Asp Gly Lys Gly Thr Ala Lys His
 485 490 495

Leu Leu Asp Lys Ile Ala Asp Leu Glu Ser Glu Ala Gln Lys Ser Phe
 500 505 510

Met His Arg Phe Asn Ile Ala Ala Asp Leu Val Asp Glu Ala Lys Ser
 515 520 525

Ala Gly Gln Leu Gly Phe Ala Gly Ile Leu Val Trp Met Arg Phe Met
 530 535 540

Ala Thr Arg Gln Leu Val Trp Asn Lys Asn Tyr Asn Val Lys Pro Arg
 Seite 40

BCS 04-5003-PCT_Erhöhte Akt. OK1 & R1_SEQUENZPROTOKOLL.ST25
 545 550 555 560

Glu Ile Ser Lys Ala Gln Asp Arg Leu Thr Asp Leu Leu Gln Asp Val
 565 570 575

Tyr Ala Ser Tyr Pro Glu Tyr Arg Glu Leu Leu Arg Met Ile Met Ser
 580 585 590

Thr Val Gly Arg Gly Gly Glu Gly Asp Val Gly Gln Arg Ile Arg Asp
 595 600 605

Glu Ile Leu Val Ile Gln Arg Lys Asn Asp Cys Lys Gly Gly Ile Met
 610 615 620

Glu Glu Trp His Gln Lys Leu His Asn Asn Thr Ser Pro Asp Asp Val
 625 630 635 640

Val Ile Cys Gln Ala Leu Met Asp Tyr Ile Lys Ser Asp Phe Asp Leu
 645 650 655

Ser Val Tyr Trp Lys Thr Leu Asn Asp Asn Gly Ile Thr Lys Glu Arg
 660 665 670

Leu Leu Ser Tyr Asp Arg Ala Ile His Ser Glu Pro Asn Phe Arg Gly
 675 680 685

Glu Gln Lys Asp Gly Leu Leu Arg Asp Leu Gly His Tyr Met Arg Thr
 690 695 700

Leu Lys Ala Val His Ser Gly Ala Asp Leu Glu Ser Ala Ile Gln Asn
 705 710 715 720

Cys Met Gly Tyr Gln Asp Asp Gly Glu Gly Phe Met Val Gly Val Gln
 725 730 735

Ile Asn Pro Val Ser Gly Leu Pro Ser Gly Tyr Pro Asp Leu Leu Arg
 740 745 750

Phe Val Leu Glu His Val Glu Glu Lys Asn Val Glu Pro Leu Leu Glu
 755 760 765

Gly Leu Leu Glu Ala Arg Gln Glu Leu Arg Pro Leu Leu Leu Lys Ser
 770 775 780

His Asp Arg Leu Lys Asp Leu Leu Phe Leu Asp Leu Ala Leu Asp Ser
 785 790 795 800

Thr Val Arg Thr Ala Ile Glu Arg Gly Tyr Glu Gln Leu Asn Asp Ala
 805 810 815

Gly Pro Glu Lys Ile Met Tyr Phe Ile Ser Leu Val Leu Glu Asn Leu
 Seite 41

BCS 04-5003-PCT_Erhöhte Akt. OK1 & R1_SEQUENZPROTOKOLL.ST25
 820 825 830

Ala Leu Ser Ser Asp Asp Asn Glu Asp Leu Ile Tyr Cys Leu Lys Gly
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Trp Gln Phe Ala Leu Asp Met Cys Lys Ser Lys Lys Asp His Trp Ala
 850 855 860

Leu Tyr Ala Lys Ser Val Leu Asp Arg Ser Arg Leu Ala Leu Ala Ser
 865 870 875 880

Lys Ala Glu Arg Tyr Leu Glu Ile Leu Gln Pro Ser Ala Glu Tyr Leu
 885 890 895

Gly Ser Cys Leu Gly Val Asp Gln Ser Ala Val Ser Ile Phe Thr Glu
 900 905 910

Glu Ile Ile Arg Ala Gly Ser Ala Ala Ala Leu Ser Ser Leu Val Asn
 915 920 925

Arg Leu Asp Pro Val Leu Arg Lys Thr Ala Asn Leu Gly Ser Trp Gln
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Val Ile Ser Pro Val Glu Val Val Gly Tyr Val Ile Val Val Asp Glu
 945 950 955 960

Leu Leu Thr Val Gln Asn Lys Thr Tyr Asp Arg Pro Thr Ile Ile Val
 965 970 975

Ala Asn Arg Val Arg Gly Glu Glu Glu Ile Pro Asp Gly Ala Val Ala
 980 985 990

Val Leu Thr Pro Asp Met Pro Asp Val Leu Ser His Val Ser Val Arg
 995 1000 1005

Ala Arg Asn Gly Lys Ile Cys Phe Ala Thr Cys Phe Asp Ser Gly
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Ile Leu Ser Asp Leu Gln Gly Lys Asp Gly Lys Leu Leu Ser Leu
 1025 1030 1035

Gln Pro Thr Ser Ala Asp Val Val Tyr Lys Glu Val Asn Asp Ser
 1040 1045 1050

Glu Leu Ser Ser Pro Ser Ser Asp Asn Leu Glu Asp Ala Pro Pro
 1055 1060 1065

Ser Ile Ser Leu Val Lys Lys Gln Phe Ala Gly Arg Tyr Ala Ile
 1070 1075 1080

Ser Ser Glu Glu Phe Thr Ser Asp Leu Val Gly Ala Lys Ser Arg
 Seite 42

BCS 04-5003-PCT_Erhöhte Akt. OK1 & R1_SEQUENZPROTOKOLL.ST25
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Asn Ile Gly Tyr Leu Lys Gly Lys Val Pro Ser Trp Val Gly Ile
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Pro Thr Ser Val Ala Leu Pro Phe Gly Val Phe Glu Lys Val Ile
 1115 1120 1125

Ser Glu Lys Ala Asn Gln Ala Val Asn Asp Lys Leu Leu Val Leu
 1130 1135 1140

Lys Lys Thr Leu Asp Glu Gly Asp Gln Gly Ala Leu Lys Glu Ile
 1145 1150 1155

Arg Gln Thr Leu Leu Gly Leu Val Ala Pro Pro Glu Leu Val Glu
 1160 1165 1170

Glu Leu Lys Ser Thr Met Lys Ser Ser Asp Met Pro Trp Pro Gly
 1175 1180 1185

Asp Glu Gly Glu Gln Arg Trp Glu Gln Ala Trp Ala Ala Ile Lys
 1190 1195 1200

Lys Val Trp Ala Ser Lys Trp Asn Glu Arg Ala Tyr Phe Ser Thr
 1205 1210 1215

Arg Lys Val Lys Leu Asp His Asp Tyr Leu Cys Met Ala Val Leu
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Val Gln Glu Val Ile Asn Ala Asp Tyr Ala Phe Val Ile His Thr
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Thr Asn Pro Ser Ser Gly Asp Ser Ser Glu Ile Tyr Ala Glu Val
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Val Lys Gly Leu Gly Glu Thr Leu Val Gly Ala Tyr Pro Gly Arg
 1265 1270 1275

Ser Leu Ser Phe Ile Cys Lys Lys Asn Asn Leu Asp Ser Pro Leu
 1280 1285 1290

Val Leu Gly Tyr Pro Ser Lys Pro Ile Gly Leu Phe Ile Arg Arg
 1295 1300 1305

Ser Ile Ile Phe Arg Ser Asp Ser Asn Gly Glu Asp Leu Glu Gly
 1310 1315 1320

Tyr Ala Gly Ala Gly Leu Tyr Asp Ser Val Pro Met Asp Glu Glu
 1325 1330 1335

Asp Gln Val Val Leu Asp Tyr Thr Thr Asp Pro Leu Ile Thr Asp

BCS 04-5003-PCT_Erhöhte Akt. OK1 & R1_SEQUENZPROTOKOLL.ST25
 1340 1345 1350

Leu Ser Phe Gln Lys Lys Val Leu Ser Asp Ile Ala Arg Ala Gly
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 1370 1375 1380

Val Ile Arg Asp Gly Lys Leu Tyr Val Val Gln Thr Arg Pro Gln
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 Met Ser Asn Ser
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tta ggg aat aac ttg ctg tac cag gga ttc cta acc tca aca gtg ttg 164
 Leu Gly Asn Asn Leu Leu Tyr Gln Gly Phe Leu Thr Ser Thr Val Leu
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gaa cat aaa agt aga atc agt cct cct tgt gtt gga ggc aat tct ttg 212
 Glu His Lys Ser Arg Ile Ser Pro Pro Cys Val Gly Gly Asn Ser Leu
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ttt caa caa caa gtg atc tcg aaa tca cct tta tca act gag ttt cga 260
 Phe Gln Gln Gln Val Ile Ser Lys Ser Pro Leu Ser Thr Glu Phe Arg
 40 45 50

ggg aac agg tta aag gtg cag aaa aag aaa ata cct atg gaa aag aag 308
 Gly Asn Arg Leu Lys Val Gln Lys Lys Lys Ile Pro Met Glu Lys Lys

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55				60				65								
cgt Arg	gct Ala 70	ttt Phe	tct Ser	agt Ser	tct Ser	cct Pro 75	cat His	gct Ala	gta Val	ctt Leu	acc Thr 80	act Thr	gat Asp	acc Thr	tct Ser	356
tct Ser 85	gag Glu	cta Leu	gca Ala	gaa Glu	aag Lys 90	ttc Phe	agt Ser	cta Leu	ggg Gly	ggg Gly 95	aat Asn	att Ile	gag Glu	cta Leu	cag Gln 100	404
gtt Val	gat Asp	gtt Val	agg Arg	cct Pro 105	ccc Pro	act Thr	tca Ser	ggg Gly	gat Asp 110	gtg Val	tcc Ser	ttt Phe	gtg Val	gat Asp 115	ttt Phe	452
caa Gln	gta Val	aca Thr	aat Asn 120	ggg Gly	agt Ser	gat Asp	aaa Lys	ctg Leu 125	ttt Phe	ttg Leu	cac His	tgg Trp	ggg Gly 130	gca Ala	gta Val	500
aaa Lys	ttc Phe	ggg Gly 135	aaa Lys	gaa Glu	aca Thr	tgg Trp	tct Ser 140	ctt Leu	ccg Pro	aat Asn	gat Asp	cgt Arg 145	cca Pro	gat Asp	ggg Gly	548
acc Thr	aaa Lys 150	gtg Val	tac Tyr	aag Lys	aac Asn	aaa Lys 155	gca Ala	ctt Leu	aga Arg	act Thr	cca Pro 160	ttt Phe	gtt Val	aaa Lys	tct Ser	596
ggc Gly 165	tct Ser	aac Asn	tcc Ser	atc Ile	ctg Leu 170	aga Arg	ctg Leu	gag Glu	ata Ile	cga Arg 175	gac Asp	act Thr	gct Ala	atc Ile	gaa Glu 180	644
gct Ala	att Ile	gag Glu	ttt Phe	ctc Leu 185	ata Ile	tac Tyr	gat Asp	gaa Glu	gcc Ala 190	cac His	gat Asp	aaa Lys	tgg Trp	ata Ile 195	aag Lys	692
aat Asn	aat Asn	ggg Gly	ggg Gly 200	aat Asn	ttt Phe	cgt Arg	gtc Val	aaa Lys 205	ttg Leu	tca Ser	aga Arg	aaa Lys	gag Glu 210	ata Ile	cga Arg	740
ggc Gly	cca Pro	gat Asp 215	gtt Val	tct Ser	gtt Val	cct Pro	gag Glu 220	gag Glu	ctt Leu	gta Val	cag Gln	atc Ile 225	caa Gln	tca Ser	tat Tyr	788
ttg Leu	agg Arg 230	tgg Trp	gag Glu	agg Arg	aag Lys	gga Gly 235	aaa Lys	cag Gln	aat Asn	tac Tyr	ccc Pro 240	cct Pro	gag Glu	aaa Lys	gag Glu	836
aag Lys 245	gag Glu	gaa Glu	tat Tyr	gag Glu	gct Ala 250	gct Ala	cga Arg	act Thr	gtg Val	cta Leu 255	cag Gln	gag Glu	gaa Glu	ata Ile	gct Ala 260	884
cgt Arg	ggg Gly	gct Ala	tcc Ser	ata Ile 265	cag Gln	gac Asp	att Ile	cga Arg	gca Ala 270	agg Arg	cta Leu	aca Thr	aaa Lys	act Thr 275	aat Asn	932
gat Asp	aaa Lys	agt Ser	caa Gln 280	agc Ser	aaa Lys	gaa Glu	gag Glu	cct Pro 285	ctt Leu	cat His	gta Val	aca Thr	aag Lys 290	agt Ser	gat Asp	980
ata Ile	cct Pro	gat Asp 295	gac Asp	ctt Leu	gcc Ala	caa Gln	gca Ala 300	caa Gln	gct Ala	tac Tyr	att Ile	agg Arg 305	tgg Trp	gag Glu	aaa Lys	1028
gca Ala	gga Gly 310	aag Lys	ccg Pro	aac Asn	tat Tyr	cct Pro 315	cca Pro	gaa Glu	aag Lys	caa Gln	att Ile 320	gaa Glu	gaa Glu	ctc Leu	gaa Glu	1076
gaa Glu	gca Ala	aga Arg	aga Arg	gaa Glu	ttg Leu	caa Gln	ctt Leu	gag Glu	ctt Leu	gag Glu	aaa Lys	ggc Gly	att Ile	acc Thr	ctt Leu	1124

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325	330					335					340						
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aag aag aga gac ttt ggg cat ctt att aat aag tat act tcc agt cct	Lys Lys Arg Asp Phe Gly His Leu 380					Ile Asn Lys Tyr Thr 385					Ser Ser Pro 390					1268	
gca gta caa gta caa aag gtc ttg gaa gaa cca cca gcc tta tct aaa	Ala Val Gln Val Gln Lys Val 395					Glu Glu Pro Pro Ala 400					Leu Ser Lys 405					1316	
att aag ctg tat gcc aag gag aag gag gag cag att gat gat ccg atc	Ile Lys Leu Tyr Ala Lys 410					Glu Lys Glu Glu Gln 415					Ile Asp Asp Pro Ile 420					1364	
cta aat aaa aag atc ttt aag gtc gat gat ggg gag cta ctg gta ctg	Leu Asn Lys Lys Ile Phe Lys Val Asp 425					Asp Asp Gly Glu Leu Val 430					Leu 435					1412	
gta gca aag tcc tct ggg aag aca aaa gta cat cta gct aca gat ctg	Val Ala Lys Ser Ser Gly Lys Thr Lys Val 440					His Leu Ser Lys Thr 445					Ala Thr Asp Leu 450					1460	
aat cag cca att act ctt cac tgg gca tta tcc aaa agt cct gga gag	Asn Gln Pro Ile Thr Leu His Trp 455					Ala Leu Ser Lys Ser 460					Gly Glu 465					1508	
tgg atg gta cca cct tca agc ata ttg cct cct ggg tca att att tta	Trp Met Val Pro Pro Ser Ser 470					Ile Leu Pro Pro Gly 475					Ser Ile Ile Leu 480					1556	
gac aag gct gcc gaa aca cct ttt tca gcc agt tct tct gat ggt cta	Asp Lys Ala Ala Glu Thr 485					Pro Phe Ser Ala Ser 490					Ser Ser Asp Gly Leu 500					1604	
act tct aag gta caa tct ttg gat ata gta att gaa gat ggc aat ttt	Thr Ser Lys Val Gln Ser Leu Asp Ile Val 505					Ile Val Ile Glu Asp Gly Asn Phe 510					515					1652	
gtg ggg atg cca ttt gtt ctt ttg tct ggt gaa aaa tgg att aag aac	Val Gly Met Pro Phe Val Leu Leu Ser 520					Gly Phe Ser Ala Lys Trp 525					Ile Lys Asn 530					1700	
caa ggg tcg gat ttc tat gtt ggc ttc agt gct gca tcc aaa tta gca	Gln Gly Ser Asp Phe Tyr Val Gly 535					Phe Ser Ala Ala Ser 540					Lys Leu Ala 545					1748	
ctc aag gct gct ggg gat ggc agt gga act gca aag tct tta ctg gat	Leu Lys Ala Ala Gly Asp Gly Ser Gly Thr Ala 550					Lys Ser 555					Ser Leu Leu Asp 560					1796	
aaa ata gca gat atg gaa agt gag gct cag aag tca ttt atg cac cgg	Lys Ile Ala Asp Met Glu Ser Glu Ala Gln 565					Lys Ser 570					Phe Met His Arg 575					1844	
ttt aat att gca gct gac ttg ata gaa gat gcc act agt gct ggt gaa	Phe Asn Ile Ala Ala Asp Leu Ile Glu Asp 585					Ala Thr 590					Gly Glu 595					1892	
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aag Lys	gct Ala 630	cag Gln	gac Asp	aga Arg	ctt Leu	aca Thr 635	gac Asp	ttg Leu	ttg Leu	cag Gln	aat Asn 640	gct Ala	ttc Phe	acc Thr	agt Ser	2036
cac His 645	cct Pro	cag Gln	tac Tyr	cgt Arg	gaa Glu 650	att Ile	ttg Leu	cgg Arg	atg Met	att Ile 655	atg Met	tca Ser	act Thr	gtt Val	gga Gly 660	2084
cgt Arg	gga Gly	ggt Gly	gaa Glu	ggg Gly 665	gat Asp	gta Val	gga Gly	cag Gln	cga Arg 670	att Ile	agg Arg	gat Asp	gaa Glu	att Ile 675	ttg Leu	2132
gtc Val	atc Ile	cag Gln	agg Arg 680	aac Asn	aat Asn	gac Asp	tgc Cys	aag Lys 685	ggt Gly	ggt Gly	atg Met	atg Met	caa Gln 690	gaa Glu	tgg Trp	2180
cat His	cag Gln	aaa Lys 695	ttg Leu	cat His	aat Asn	aat Asn	act Thr 700	agt Ser	cct Pro	gat Asp	gat Asp	gtt Val 705	gtg Val	atc Ile	tgt Cys	2228
cag Gln	gca Ala 710	tta Leu	att Ile	gac Asp	tac Tyr	atc Ile 715	aag Lys	agt Ser	gat Asp	ttt Phe	gat Asp 720	ctt Leu	ggg Gly	gtt Val	tat Tyr	2276
tgg Trp 725	aaa Lys	acc Thr	ctg Leu	aat Asn	gag Glu 730	aac Asn	gga Gly	ata Ile	aca Thr	aaa Lys 735	gag Glu	cgt Arg	ctt Leu	ttg Leu	agt Ser 740	2324
tat Tyr	gac Asp	cgt Arg	gct Ala	atc Ile 745	cat His	tct Ser	gaa Glu	cca Pro	aat Asn 750	ttt Phe	aga Arg	gga Gly	gat Asp	caa Gln 755	aag Lys	2372
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tac Tyr	aaa Lys 790	act Thr	gag Glu	gga Gly	gaa Glu	ggc Gly 795	ttt Phe	atg Met	gtt Val	gga Gly	gtc Val 800	cag Gln	ata Ile	aat Asn	cct Pro	2516
gta Val 805	tca Ser	ggc Gly	ttg Leu	cca Pro	tct Ser 810	ggc Gly	ttt Phe	cag Gln	gac Asp	ctc Leu 815	ctc Leu	cat His	ttt Phe	gtc Val	tta Leu 820	2564
gac Asp	cat His	gtg Val	gaa Glu	gat Asp 825	aaa Lys	aat Asn	gtg Val	gaa Glu	act Thr 830	ctt Leu	ctt Leu	gag Glu	aga Arg	ttg Leu 835	cta Leu	2612
gag Glu	gct Ala	cgt Arg	gag Glu 840	gag Glu	ctt Leu	agg Arg	ccc Pro	ttg Leu 845	ctt Leu	ctc Leu	aaa Lys	cca Pro	aac Asn 850	aac Asn	cgt Arg	2660
cta Leu	aag Lys	gat Asp 855	ctg Leu	ctg Leu	ttt Phe	ttg Leu	gac Asp 860	ata Ile	gca Ala	ctt Leu	gat Asp	tct Ser 865	aca Thr	gtt Val	aga Arg	2708
aca Thr	gca Ala	gta Val	gaa Glu	agg Arg	gga Gly	tat Tyr	gaa Glu	gaa Glu	ttg Leu	aac Asn	aac Asn	gct Ala	aat Asn	cct Pro	gag Glu	2756

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870				875				880								
aaa Lys 885	atc Ile	atg Met	tac Tyr	ttc Phe	atc Ile 890	tcc Ser	ctc Leu	gtt Val	ctt Leu	gaa Glu 895	aat Asn	ctc Leu	gca Ala	ctc Leu	tct Ser 900	2804
gtg Val	gac Asp	gat Asp	aat Asn	gaa Glu 905	gat Asp	ctt Leu	gtt Val	tat Tyr	tgc Cys 910	ttg Leu	aag Lys	gga Gly	tgg Trp	aat Asn 915	caa Gln	2852
gct Ala	ctt Leu	tca Ser	atg Met 920	tcc Ser	aat Asn	ggt Gly	ggg Gly	gac Asp 925	aac Asn	cat His	tgg Trp	gct Ala	tta Leu 930	ttt Phe	gca Ala	2900
aaa Lys	gct Ala	gtg Val 935	ctt Leu	gac Asp	aga Arg	acc Thr	cgt Arg 940	ctt Leu	gca Ala	ctt Leu	gca Ala	agc Ser 945	aag Lys	gca Ala	gag Glu	2948
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cgt Arg	gct Ala	gga Gly	tca Ser	gca Ala 985	gct Ala	tca Ser	tta Leu	tcc Ser	tct Ser 990	ctt Leu	ctt Leu	aat Asn	aga Arg	ctc Leu 995	gat Asp	3092
ccc Pro	gtg Val	ctt Leu	cgg Arg 1000	aaa Lys	act Thr	gca Ala	aat Asn	cta Leu 1005	gga Gly	agt Ser	tgg Trp	cag Gln	att Ile 1010	atc Ile		3137
agt Ser	cca Pro	gtt Val	gaa Glu 1015	gcc Ala	gtt Val	gga Gly	tat Tyr	gtt Val 1020	gtc Val	gtt Val	gtg Val	gat Asp	gag Glu 1025	ttg Leu		3182
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gca Ala	aaa Lys	tct Ser	gtt Val 1045	aaa Lys	gga Gly	gag Glu	gag Glu	gaa Glu 1050	att Ile	cct Pro	gat Asp	ggt Gly	gct Ala 1055	gtt Val		3272
gcc Ala	ctg Leu	ata Ile	aca Thr 1060	cca Pro	gac Asp	atg Met	cca Pro	gat Asp 1065	gtt Val	ctt Leu	tca Ser	cat His	gtt Val 1070	tct Ser		3317
gtt Val	cga Arg	gct Ala	aga Arg 1075	aat Asn	ggg Gly	aag Lys	gtt Val	tgc Cys 1080	ttt Phe	gct Ala	aca Thr	tgc Cys	ttt Phe 1085	gat Asp		3362
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ctc Leu	tta Leu	aag Lys	cct Pro 1105	aca Thr	cct Pro	tca Ser	gac Asp	ata Ile 1110	atc Ile	tat Tyr	agt Ser	gag Glu	gtg Val 1115	aat Asn		3452
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tca Ser	gca Ala	aca Thr	ctt Leu	aga Arg	ttg Leu	gtg Val	aaa Lys	aag Lys	caa Gln	ttt Phe	ggt Gly	ggt Gly	tgt Cys	tac Tyr		3542

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1135				1140				1145							
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tca Ser	cgt Arg	aat Asn	att Ile 1165	gca Ala	tat Tyr	ctg Leu	aaa Lys	gga Gly 1170	aaa Lys	gtg Val	cct Pro	tcc Ser	tcg Ser 1175	gtg Val	3632
gga Gly	att Ile	cct Pro	acg Thr 1180	tca Ser	gta Val	gct Ala	ctt Leu	cca Pro 1185	ttt Phe	gga Gly	gtc Val	ttt Phe	gag Glu 1190	aaa Lys	3677
gta Val	ctt Leu	tca Ser	gac Asp 1195	gac Asp	ata Ile	aat Asn	cag Gln	gga Gly 1200	gtg Val	gca Ala	aaa Lys	gag Glu	ttg Leu 1205	caa Gln	3722
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gaa Glu	att Ile	cgc Arg	aca Thr 1225	acg Thr	gtt Val	tta Leu	gat Asp	ctt Leu 1230	tca Ser	gca Ala	cca Pro	gct Ala	caa Gln 1235	ttg Leu	3812
gtc Val	aaa Lys	gag Glu	ctg Leu 1240	aag Lys	gag Glu	aag Lys	atg Met	cag Gln 1245	ggc Gly	tct Ser	ggc Gly	atg Met	cct Pro 1250	tgg Trp	3857
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gtc Val	ctt Leu	gtt Val	caa Gln 1300	gaa Glu	ata Ile	ata Ile	aat Asn	gct Ala 1305	gat Asp	tat Tyr	gca Ala	ttt Phe	gtc Val 1310	att Ile	4037
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cct Pro	caa Gln	gtg Val	tta Leu 1360	ggc Gly	tac Tyr	cca Pro	agc Ser	aaa Lys 1365	ccg Pro	atc Ile	ggc Gly	ctt Leu	ttc Phe 1370	ata Ile	4217
aaa Lys	aga Arg	tct Ser	atc Ile 1375	atc Ile	ttc Phe	cga Arg	tct Ser	gat Asp 1380	tcc Ser	aat Asn	ggg Gly	gaa Glu	gat Asp 1385	ttg Leu	4262
gaa Glu	ggc Gly	tat Tyr	gcc Ala	ggc Gly	gct Ala	ggc Gly	ctc Leu	tac Tyr	gac Asp	agt Ser	gta Val	cca Pro	atg Met	gat Asp	4307

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 1390 1395 1400

gag gag gaa aaa gtt gta att gat tac tct tcc gac cca ttg ata 4352
 Glu Glu Glu Lys Val Val Ile Asp Tyr Ser Ser Asp Pro Leu Ile
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act gat ggt aac ttc cgc cag aca atc ctg tcc aac att gct cgt 4397
 Thr Asp Gly Asn Phe Arg Gln Thr Ile Leu Ser Asn Ile Ala Arg
 1420 1425 1430

gct gga cat gct atc gag gag cta tat ggc tct cct caa gac att 4442
 Ala Gly His Ala Ile Glu Glu Leu Tyr Gly Ser Pro Gln Asp Ile
 1435 1440 1445

gag ggt gta gtg agg gat gga aag att tat gtc gtt cag aca aga 4487
 Glu Gly Val Val Arg Asp Gly Lys Ile Tyr Val Val Gln Thr Arg
 1450 1455 1460

cca cag atg tga ttatatctc gttgtatggt gttcagagaa gaccacagat 4539
 Pro Gln Met

gtgatcatat tctcattgta tcagatctgt gaccacttac ctgatacctc ccatgaagtt 4599
 acctgtatga ttatacgtga tccaaagcca tcacatcatg ttcaccttca gctattggag 4659
 gagaagtgag aagtaggaat tgcaatatga ggaataataa gaaaaacttt gtaaaagcta 4719
 aattagctgg gtatgatata gggagaaatg tgtaaacatt gtactatata tagtatatac 4779
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<211> 1464

<212> PRT

<213> Solanum tuberosum

<400> 11

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Gly Asn Ser Leu Phe Gln Gln Gln Val Ile Ser Lys Ser Pro Leu Ser
 35 40 45

Thr Glu Phe Arg Gly Asn Arg Leu Lys Val Gln Lys Lys Lys Ile Pro
 50 55 60

Met Glu Lys Lys Arg Ala Phe Ser Ser Ser Pro His Ala Val Leu Thr
 65 70 75 80

Thr Asp Thr Ser Ser Glu Leu Ala Glu Lys Phe Ser Leu Gly Gly Asn
 Seite 50

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 85 90 95

Ile Glu Leu Gln Val Asp Val Arg Pro Pro Thr Ser Gly Asp Val Ser
 100 105 110

Phe Val Asp Phe Gln Val Thr Asn Gly Ser Asp Lys Leu Phe Leu His
 115 120 125

Trp Gly Ala Val Lys Phe Gly Lys Glu Thr Trp Ser Leu Pro Asn Asp
 130 135 140

Arg Pro Asp Gly Thr Lys Val Tyr Lys Asn Lys Ala Leu Arg Thr Pro
 145 150 155 160

Phe Val Lys Ser Gly Ser Asn Ser Ile Leu Arg Leu Glu Ile Arg Asp
 165 170 175

Thr Ala Ile Glu Ala Ile Glu Phe Leu Ile Tyr Asp Glu Ala His Asp
 180 185 190

Lys Trp Ile Lys Asn Asn Gly Gly Asn Phe Arg Val Lys Leu Ser Arg
 195 200 205

Lys Glu Ile Arg Gly Pro Asp Val Ser Val Pro Glu Glu Leu Val Gln
 210 215 220

Ile Gln Ser Tyr Leu Arg Trp Glu Arg Lys Gly Lys Gln Asn Tyr Pro
 225 230 235 240

Pro Glu Lys Glu Lys Glu Glu Tyr Glu Ala Ala Arg Thr Val Leu Gln
 245 250 255

Glu Glu Ile Ala Arg Gly Ala Ser Ile Gln Asp Ile Arg Ala Arg Leu
 260 265 270

Thr Lys Thr Asn Asp Lys Ser Gln Ser Lys Glu Glu Pro Leu His Val
 275 280 285

Thr Lys Ser Asp Ile Pro Asp Asp Leu Ala Gln Ala Gln Ala Tyr Ile
 290 295 300

Arg Trp Glu Lys Ala Gly Lys Pro Asn Tyr Pro Pro Glu Lys Gln Ile
 305 310 315 320

Glu Glu Leu Glu Glu Ala Arg Arg Glu Leu Gln Leu Glu Leu Glu Lys
 325 330 335

Gly Ile Thr Leu Asp Glu Leu Arg Lys Thr Ile Thr Lys Gly Glu Ile
 340 345 350

Lys Thr Lys Val Glu Lys His Leu Lys Arg Ser Ser Phe Ala Val Glu
 Seite 51

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Arg Ile Gln Arg Lys Lys Arg Asp Phe Gly His Leu Ile Asn Lys Tyr
 370 375 380

Thr Ser Ser Pro Ala Val Gln Val Gln Lys Val Leu Glu Glu Pro Pro
 385 390 395 400

Ala Leu Ser Lys Ile Lys Leu Tyr Ala Lys Glu Lys Glu Glu Gln Ile
 405 410 415

Asp Asp Pro Ile Leu Asn Lys Lys Ile Phe Lys Val Asp Asp Gly Glu
 420 425 430

Leu Leu Val Leu Val Ala Lys Ser Ser Gly Lys Thr Lys Val His Leu
 435 440 445

Ala Thr Asp Leu Asn Gln Pro Ile Thr Leu His Trp Ala Leu Ser Lys
 450 455 460

Ser Pro Gly Glu Trp Met Val Pro Pro Ser Ser Ile Leu Pro Pro Gly
 465 470 475 480

Ser Ile Ile Leu Asp Lys Ala Ala Glu Thr Pro Phe Ser Ala Ser Ser
 485 490 495

Ser Asp Gly Leu Thr Ser Lys Val Gln Ser Leu Asp Ile Val Ile Glu
 500 505 510

Asp Gly Asn Phe Val Gly Met Pro Phe Val Leu Leu Ser Gly Glu Lys
 515 520 525

Trp Ile Lys Asn Gln Gly Ser Asp Phe Tyr Val Gly Phe Ser Ala Ala
 530 535 540

Ser Lys Leu Ala Leu Lys Ala Ala Gly Asp Gly Ser Gly Thr Ala Lys
 545 550 555 560

Ser Leu Leu Asp Lys Ile Ala Asp Met Glu Ser Glu Ala Gln Lys Ser
 565 570 575

Phe Met His Arg Phe Asn Ile Ala Ala Asp Leu Ile Glu Asp Ala Thr
 580 585 590

Ser Ala Gly Glu Leu Gly Phe Ala Gly Ile Leu Val Trp Met Arg Phe
 595 600 605

Met Ala Thr Arg Gln Leu Ile Trp Asn Lys Asn Tyr Asn Val Lys Pro
 610 615 620

Arg Glu Ile Ser Lys Ala Gln Asp Arg Leu Thr Asp Leu Leu Gln Asn

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 625 630 635 640

Ala Phe Thr Ser His Pro Gln Tyr Arg Glu Ile Leu Arg Met Ile Met
 645 650 655

Ser Thr Val Gly Arg Gly Gly Glu Gly Asp Val Gly Gln Arg Ile Arg
 660 665 670

Asp Glu Ile Leu Val Ile Gln Arg Asn Asn Asp Cys Lys Gly Gly Met
 675 680 685

Met Gln Glu Trp His Gln Lys Leu His Asn Asn Thr Ser Pro Asp Asp
 690 695 700

Val Val Ile Cys Gln Ala Leu Ile Asp Tyr Ile Lys Ser Asp Phe Asp
 705 710 715 720

Leu Gly Val Tyr Trp Lys Thr Leu Asn Glu Asn Gly Ile Thr Lys Glu
 725 730 735

Arg Leu Leu Ser Tyr Asp Arg Ala Ile His Ser Glu Pro Asn Phe Arg
 740 745 750

Gly Asp Gln Lys Gly Gly Leu Leu Arg Asp Leu Gly His Tyr Met Arg
 755 760 765

Thr Leu Lys Ala Val His Ser Gly Ala Asp Leu Glu Ser Ala Ile Ala
 770 775 780

Asn Cys Met Gly Tyr Lys Thr Glu Gly Glu Gly Phe Met Val Gly Val
 785 790 795 800

Gln Ile Asn Pro Val Ser Gly Leu Pro Ser Gly Phe Gln Asp Leu Leu
 805 810 815

His Phe Val Leu Asp His Val Glu Asp Lys Asn Val Glu Thr Leu Leu
 820 825 830

Glu Arg Leu Leu Glu Ala Arg Glu Glu Leu Arg Pro Leu Leu Leu Lys
 835 840 845

Pro Asn Asn Arg Leu Lys Asp Leu Leu Phe Leu Asp Ile Ala Leu Asp
 850 855 860

Ser Thr Val Arg Thr Ala Val Glu Arg Gly Tyr Glu Glu Leu Asn Asn
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Ala Asn Pro Glu Lys Ile Met Tyr Phe Ile Ser Leu Val Leu Glu Asn
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Leu Ala Leu Ser Val Asp Asp Asn Glu Asp Leu Val Tyr Cys Leu Lys

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Leu Gly Ser Ile Leu Gly Val Asp Gln Trp Ala Leu Asn Ile Phe Thr
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Glu Glu Ile Ile Arg Ala Gly Ser Ala Ala Ser Leu Ser Ser Leu Leu
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Asn Arg Leu Asp Pro Val Leu Arg Lys Thr Ala Asn Leu Gly Ser Trp
 995 1000 1005

Gln Ile Ile Ser Pro Val Glu Ala Val Gly Tyr Val Val Val Val
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Asp Glu Leu Leu Ser Val Gln Asn Glu Ile Tyr Glu Lys Pro Thr
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Ile Leu Val Ala Lys Ser Val Lys Gly Glu Glu Glu Ile Pro Asp
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Gly Ala Val Ala Leu Ile Thr Pro Asp Met Pro Asp Val Leu Ser
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His Val Ser Val Arg Ala Arg Asn Gly Lys Val Cys Phe Ala Thr
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Cys Phe Asp Pro Asn Ile Leu Ala Asp Leu Gln Ala Lys Glu Gly
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Arg Ile Leu Leu Leu Lys Pro Thr Pro Ser Asp Ile Ile Tyr Ser
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Ala Glu Thr Ser Ala Thr Leu Arg Leu Val Lys Lys Gln Phe Gly
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Gly Cys Tyr Ala Ile Ser Ala Asp Glu Phe Thr Ser Glu Met Val
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Gly Ala Lys Ser Arg Asn Ile Ala Tyr Leu Lys Gly Lys Val Pro
 Seite 54

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Glu Leu Gln Ile Leu Met Lys Lys Leu Ser Glu Gly Asp Phe Ser
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Ala Leu Gly Glu Ile Arg Thr Thr Val Leu Asp Leu Ser Ala Pro
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Ala Gln Leu Val Lys Glu Leu Lys Glu Lys Met Gln Gly Ser Gly
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Met Pro Trp Pro Gly Asp Glu Gly Pro Lys Arg Trp Glu Gln Ala
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Trp Met Ala Ile Lys Lys Val Trp Ala Ser Lys Trp Asn Glu Arg
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Ala Tyr Phe Ser Thr Arg Lys Val Lys Leu Asp His Asp Tyr Leu
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Cys Met Ala Val Leu Val Gln Glu Ile Ile Asn Ala Asp Tyr Ala
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Phe Val Ile His Thr Thr Asn Pro Ser Ser Gly Asp Asp Ser Glu
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Ile Tyr Ala Glu Val Val Arg Gly Leu Gly Glu Thr Leu Val Gly
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Pro Met Asp Glu Glu Glu Lys Val Val Ile Asp Tyr Ser Ser Asp
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Pro Leu Ile Thr Asp Gly Asn Phe Arg Gln Thr Ile Leu Ser Asn
 Seite 55

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Ser Pro Ala Leu Leu Pro Pro Ala Ala Leu Arg Arg Gly Arg Arg Leu	
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Pro Ala Ala Thr Thr Thr Leu Ala Val Ser Arg Arg Ser Leu Leu Ala	
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Pro Arg Ala Ile Ala Ala Ser Thr Gly Arg Ala Ser Pro Gly Leu Val	
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Gly Arg Phe Thr Leu Asp Ala Asn Ser Glu Leu Lys Val Thr Leu Asn	
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acc	agc	ggc	tcc	ctg	ata	ctg	cat	tgg	ggc	gcc	ctt	cgc	ccg	gat	aga	388
Thr	Ser	Gly	Ser	Leu	Ile	Leu	His	Trp	Gly	Ala	Leu	Arg	Pro	Asp	Arg	
		110					115					120				
gga	gaa	tgg	ctc	cta	cca	tcc	cgg	aaa	cca	gat	ggc	acg	aca	gtg	tac	436
Gly	Glu	Trp	Leu	Leu	Pro	Ser	Arg	Lys	Pro	Asp	Gly	Thr	Thr	Val	Tyr	
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Lys	Asn	Arg	Ala	Leu	Arg	Thr	Pro	Phe	Ile	Lys	Ser	Gly	Asp	Asn	Ser	
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Thr	Leu	Lys	Ile	Glu	Ile	Asp	Asp	Pro	Ala	Val	Gln	Ala	Ile	Glu	Phe	
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ctc	ata	ttt	gat	gag	gca	cgg	aat	aat	tgg	tac	aaa	aac	aat	ggc	cag	580
Leu	Ile	Phe	Asp	Glu	Ala	Arg	Asn	Asn	Trp	Tyr	Lys	Asn	Asn	Gly	Gln	
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Asn	Phe	Gln	Ile	Gln	Leu	Gln	Ala	Ser	Gln	Tyr	Gln	Gly	Gln	Gly	Thr	
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Ser	Thr	Ala	Thr	Ser	Ser	Thr	Val	Val	Pro	Glu	Asp	Leu	Val	Gln	Ile	
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Gln	Ser	Tyr	Leu	Arg	Trp	Glu	Arg	Lys	Gly	Lys	Gln	Ser	Tyr	Thr	Pro	
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Glu	Gln	Glu	Lys	Glu	Glu	Tyr	Glu	Ala	Ala	Arg	Thr	Glu	Leu	Ile	Glu	
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Glu	Leu	Asn	Lys	Gly	Val	Ser	Leu	Glu	Lys	Leu	Arg	Ala	Lys	Leu	Thr	
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Lys	Thr	Pro	Glu	Ala	Thr	Asp	Ser	Asn	Ala	Pro	Ala	Ser	Glu	Ser	Thr	
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Arg	Trp	Glu	Lys	Ala	Gly	Lys	Pro	Asn	Tyr	Ala	Pro	Glu	Lys	Gln	Leu	
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gtc	gag	ttt	gag	gaa	gca	agg	aag	gaa	ctg	cag	tct	gag	ttg	gat	aag	1012
Val	Glu	Phe	Glu	Ala	Ala	Arg	Lys	Glu	Leu	Gln	Ser	Glu	Leu	Asp	Lys	
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Gly	Thr	Ser	Val	Glu	Gln	Leu	Arg	Asn	Lys	Ile	Leu	Lys	Gly	Asn	Ile	
			335					340					345			
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Glu	Thr	Lys	Val	Ser	Lys	Gln	Leu	Lys	Asp	Lys	Lys	Tyr	Phe	Ser	Val	
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cac His 380	aag Lys	cct Pro	act Thr	gtt Val	atg Met 385	gaa Glu	gcg Ala	caa Gln	gta Val	gag Glu 390	act Thr	cct Pro	aaa Lys	caa Gln	ccc Pro 395	1204
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gag Glu	gtt Val	cta Leu	agc Ser 415	aga Arg	aag Lys	ctt Leu	ttc Phe	aag Lys 420	ttc Phe	ggt Gly	gac Asp	aag Lys	gag Glu 425	ata Ile	ctg Leu	1300
gga Gly	att Ile	acc Thr 430	acc Thr	gtt Val	gct Ala	cta Leu	gga Gly 435	aaa Lys	acc Thr	aaa Lys	gtt Val	cac His 440	ttg Leu	gca Ala	aca Thr	1348
aac Asn	tat Tyr 445	atg Met	gag Glu	cca Pro	ctt Leu	ata Ile 450	ctt Leu	cac His	tgg Trp	gcg Ala	ttg Leu 455	tca Ser	aaa Lys	gag Glu	aat Asn	1396
gga Gly 460	gag Glu	tgg Trp	cag Gln	gca Ala	cct Pro 465	ccc Pro	tca Ser	agc Ser	ata Ile	ttg Leu 470	cca Pro	tct Ser	ggt Gly	tca Ser	tca Ser 475	1444
ttg Leu	cta Leu	gac Asp	aag Lys	gca Ala 480	tgt Cys	gaa Glu	act Thr	tca Ser	ttc Phe 485	agt Ser	gaa Glu	tat Tyr	gaa Glu	ttg Leu 490	aat Asn	1492
ggt Gly	ctg Leu	cat His	tgt Cys 495	cag Gln	gtt Val	gtt Val	gag Glu	atc Ile 500	gag Glu	ctt Leu	gac Asp	gat Asp	ggt Gly 505	gga Gly	tac Tyr	1540
aag Lys	cgg Arg	atg Met 510	ccc Pro	ttt Phe	gtt Val	ctc Leu	cgg Arg 515	tct Ser	ggt Gly	gaa Glu	aca Thr	tgg Trp 520	atg Met	aaa Lys	aat Asn	1588
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aga Arg	ttc Phe	aat Asn	att Ile 575	gca Ala	gca Ala	gat Asp	cta Leu	gtt Val 580	gac Asp	caa Gln	gcg Ala	aga Arg	gat Asp 585	aat Asn	gga Gly	1780
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ggc Gly	gaa Glu 1215	ata Ile	cgg Arg	aaa Lys	act Thr	gtt Val 1220	ctc Leu	aat Asn	tta Leu	act Thr	gct Ala 1225	cct Pro	act Thr	caa Gln	3703
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tgg Trp	cct Pro 1245	gga Gly	gat Asp	gaa Glu	ggt Gly	gac Asp 1250	caa Gln	cgt Arg	tgg Trp	gag Glu	caa Gln 1255	gca Ala	tgg Trp	atg Met	3793
gca Ala	att Ile 1260	aaa Lys	aag Lys	gtt Val	tgg Trp	gcg Ala 1265	tca Ser	aaa Lys	tgg Trp	aat Asn	gaa Glu 1270	aga Arg	gca Ala	tat Tyr	3838
ttt Phe	agc Ser 1275	act Thr	cgt Arg	aag Lys	gtg Val	aag Lys 1280	ctt Leu	gat Asp	cat His	gac Asp	tac Tyr 1285	ctt Leu	tcc Ser	atg Met	3883
gct Ala	gta Val 1290	ctt Leu	gta Val	caa Gln	gaa Glu	att Ile 1295	gtc Val	aat Asn	gca Ala	gac Asp	tat Tyr 1300	gcc Ala	ttt Phe	gtc Val	3928
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gct Ala	gaa Glu 1320	gtg Val	gtg Val	aaa Lys	ggg Gly	ctt Leu 1325	gga Gly	gaa Glu	aca Thr	ctt Leu	gta Val 1330	gga Gly	gcc Ala	tat Tyr	4018
cct Pro	ggt Gly 1335	cgc Arg	gcc Ala	atg Met	agc Ser	ttt Phe 1340	gta Val	tgt Cys	aag Lys	aaa Lys	aac Asn 1345	gac Asp	ctt Leu	gac Asp	4063
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tta Leu	gaa Glu 1380	ggg Gly	tat Tyr	gct Ala	gga Gly	gca Ala 1385	aga Arg	ctg Leu	tat Tyr	gat Asp	agt Ser 1390	gtc Val	cct Pro	atg Met	4198
gat Asp	gag Glu 1395	gaa Glu	gat Asp	gaa Glu	gtc Val	ata Ile 1400	gtc Val	gac Asp	tac Tyr	aac Asn	aac Asn 1405	gga Gly	ccc Pro	ctc Leu	4243
att Ile	aca Thr 1410	gat Asp	cag Gln	gga Gly	ttc Phe	caa Gln 1415	aaa Lys	tcc Ser	aac Asn	ctc Leu	ccg Pro 1420	agc Ser	att Ile	gca Ala	4288

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ccg gct ggt cat gcc att gag gag ctt tat ggg tcc cca cag gat	4333
Pro Ala Gly His Ala Ile Glu Glu Leu Tyr Gly Ser Pro Gln Asp	
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Val Glu Gly Ala Val Lys Glu Gly Lys Leu Tyr Val Val Gln Thr	
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Arg Pro Gln Met	
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<400> 13

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Pro Pro Ala Ala Leu Arg Arg Gly Arg Arg Leu Pro Ala Ala Thr Thr
35 40 45

Thr Leu Ala Val Ser Arg Arg Ser Leu Leu Ala Pro Arg Ala Ile Ala
50 55 60

Ala Ser Thr Gly Arg Ala Ser Pro Gly Leu Val Gly Arg Phe Thr Leu
65 70 75 80

Asp Ala Asn Ser Glu Leu Lys Val Thr Leu Asn Pro Ala Pro Gln Gly
85 90 95

Ser Val Val Glu Ile Asn Leu Glu Ala Thr Asn Thr Ser Gly Ser Leu
100 105 110

Ile Leu His Trp Gly Ala Leu Arg Pro Asp Arg Gly Glu Trp Leu Leu
115 120 125

Pro Ser Arg Lys Pro Asp Gly Thr Thr Val Tyr Lys Asn Arg Ala Leu
130 135 140

Arg Thr Pro Phe Ile Lys Ser Gly Asp Asn Ser Thr Leu Lys Ile Glu

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145 150 155 160

Ile Asp Asp Pro Ala Val Gln Ala Ile Glu Phe Leu Ile Phe Asp Glu
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Ala Arg Asn Asn Trp Tyr Lys Asn Asn Gly Gln Asn Phe Gln Ile Gln
180 185 190

Leu Gln Ala Ser Gln Tyr Gln Gly Gln Gly Thr Ser Thr Ala Thr Ser
195 200 205

Ser Thr Val Val Pro Glu Asp Leu Val Gln Ile Gln Ser Tyr Leu Arg
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Trp Glu Arg Lys Gly Lys Gln Ser Tyr Thr Pro Glu Gln Glu Lys Glu
225 230 235 240

Glu Tyr Glu Ala Ala Arg Thr Glu Leu Ile Glu Glu Leu Asn Lys Gly
245 250 255

Val Ser Leu Glu Lys Leu Arg Ala Lys Leu Thr Lys Thr Pro Glu Ala
260 265 270

Thr Asp Ser Asn Ala Pro Ala Ser Glu Ser Thr Val Thr Thr Lys Val
275 280 285

Pro Glu Glu Leu Val Gln Val Gln Ala Tyr Ile Arg Trp Glu Lys Ala
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Gly Lys Pro Asn Tyr Ala Pro Glu Lys Gln Leu Val Glu Phe Glu Glu
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Ala Arg Lys Glu Leu Gln Ser Glu Leu Asp Lys Gly Thr Ser Val Glu
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Gln Leu Arg Asn Lys Ile Leu Lys Gly Asn Ile Glu Thr Lys Val Ser
340 345 350

Lys Gln Leu Lys Asp Lys Lys Tyr Phe Ser Val Glu Arg Ile Gln Arg
355 360 365

Lys Lys Arg Asp Ile Val Gln Leu Leu Lys Lys His Lys Pro Thr Val
370 375 380

Met Glu Ala Gln Val Glu Thr Pro Lys Gln Pro Thr Val Leu Asp Leu
385 390 395 400

Phe Thr Lys Ser Leu Gln Glu Gln Asp Asn Cys Glu Val Leu Ser Arg
405 410 415

Lys Leu Phe Lys Phe Gly Asp Lys Glu Ile Leu Gly Ile Thr Thr Val

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 420 425 430

Ala Leu Gly Lys Thr Lys Val His Leu Ala Thr Asn Tyr Met Glu Pro
 435 440 445

Leu Ile Leu His Trp Ala Leu Ser Lys Glu Asn Gly Glu Trp Gln Ala
 450 455 460

Pro Pro Ser Ser Ile Leu Pro Ser Gly Ser Ser Leu Leu Asp Lys Ala
 465 470 475 480

Cys Glu Thr Ser Phe Ser Glu Tyr Glu Leu Asn Gly Leu His Cys Gln
 485 490 495

Val Val Glu Ile Glu Leu Asp Asp Gly Gly Tyr Lys Arg Met Pro Phe
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Val Leu Arg Ser Gly Glu Thr Trp Met Lys Asn Asn Gly Ser Asp Phe
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Tyr Leu Asp Phe Ser Thr Lys Val Ala Lys Asn Thr Lys Asp Thr Gly
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Asp Ala Gly Lys Gly Thr Ala Glu Ala Leu Leu Glu Arg Ile Ala Asp
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Leu Glu Glu Asp Ala Gln Arg Ser Leu Met His Arg Phe Asn Ile Ala
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Ala Asp Leu Val Asp Gln Ala Arg Asp Asn Gly Leu Leu Gly Ile Ile
 580 585 590

Gly Ile Phe Val Trp Ile Gly Phe Met Ala Thr Arg Gln Leu Ile Trp
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Asn Lys Asn Tyr Asn Val Lys Pro Arg Glu Ile Ser Lys Ala Gln Asp
 610 615 620

Arg Phe Thr Asp Asp Leu Glu Asn Met Tyr Arg Thr Tyr Pro Gln Tyr
 625 630 635 640

Gln Glu Ile Leu Arg Met Ile Met Ser Ala Val Gly Arg Gly Gly Glu
 645 650 655

Gly Asp Val Gly Gln Arg Ile Arg Asp Glu Ile Leu Val Ile Gln Arg
 660 665 670

Asn Asn Asp Cys Lys Gly Gly Met Met Glu Glu Trp His Gln Lys Leu
 675 680 685

His Asn Asn Thr Ser Pro Asp Asp Val Val Ile Cys Gln Ala Leu Leu
 690 695 700 705 710 715 720 725 730 735 740 745 750 755 760 765 770 775 780 785 790 795 800 805 810 815 820 825 830 835 840 845 850 855 860 865 870 875 880 885 890 895 900 905 910 915 920 925 930 935 940 945 950 955 960 965 970 975 980 985 990 995

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 690 695 700

Asp Tyr Ile Lys Ser Asp Phe Asp Thr Gly Val Tyr Trp Asp Thr Leu
 705 710 715 720

Lys Lys Gly Gly Ile Thr Lys Glu Arg Leu Leu Ser Tyr Asp Arg Pro
 725 730 735

Ile His Ser Glu Pro Asn Phe Arg Ser Glu Gln Lys Asp Ser Leu Leu
 740 745 750

Arg Asp Leu Gly Asn Tyr Met Arg Ser Leu Lys Ala Val His Ser Gly
 755 760 765

Ala Asp Leu Glu Ser Ala Ile Ala Thr Cys Met Gly Tyr Lys Ser Glu
 770 775 780

Gly Glu Gly Phe Met Val Gly Val Gln Ile Asn Pro Val Lys Gly Leu
 785 790 795 800

Pro Ser Gly Phe Pro Lys Leu Leu Glu Phe Ile Leu Asp His Val Glu
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Asp Lys Ser Ala Arg Pro Leu Leu Gly Gly Leu Leu Glu Ala Arg Ala
 820 825 830

Glu Leu His Pro Leu Leu Leu Gly Ser Pro Glu Arg Met Lys Asp Leu
 835 840 845

Ile Phe Leu Asp Ile Ala Leu Asp Ser Thr Phe Arg Thr Ala Val Glu
 850 855 860

Arg Ser Tyr Glu Glu Leu Asn Asn Val Glu Pro Glu Lys Ile Met Tyr
 865 870 875 880

Phe Ile Ser Leu Val Leu Glu Asn Leu Ala Leu Ser Thr Asp Asp Asn
 885 890 895

Glu Asp Ile Leu Tyr Cys Leu Lys Gly Trp Asn Gln Ala Val Glu Met
 900 905 910

Ala Lys Gln Lys Asn Asn Gln Trp Ala Leu Tyr Ala Lys Ala Phe Leu
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Asp Arg Thr Arg Leu Ala Leu Ala Ser Lys Gly Glu Gln Tyr Tyr Asn
 930 935 940

Leu Met Gln Pro Ser Ala Glu Tyr Leu Gly Ser Leu Leu Asn Ile Asp
 945 950 955 960

Gln Trp Ala Val Asn Ile Phe Thr Glu Glu Ile Ile Arg Gly Gly Ser
 Seite 65

BCS 04-5003-PCT_Erhöhte Akt. OK1 & R1_SEQUENZPROTOKOLL.ST25
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 980 985 990

Asn Val Ala Gln Leu Gly Ser Trp Gln Val Ile Ser Pro Val Glu Val
 995 1000 1005

Ser Gly Tyr Ile Val Val Val Asp Glu Leu Leu Ala Val Gln Asn
 1010 1015 1020

Lys Ser Tyr Asp Lys Pro Thr Ile Leu Val Ala Lys Ser Val Lys
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Gly Glu Glu Glu Ile Pro Asp Gly Val Val Gly Val Ile Thr Pro
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Asp Met Pro Asp Val Leu Ser His Val Ser Val Arg Ala Arg Asn
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Cys Lys Val Leu Phe Ala Thr Cys Phe Asp Pro Asn Thr Leu Ser
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Glu Leu Gln Gly His Asp Gly Lys Val Phe Ser Phe Lys Pro Thr
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Ser Ala Asp Ile Thr Tyr Arg Glu Ile Pro Glu Ser Glu Leu Gln
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Ser Gly Ser Leu Asn Ala Glu Ala Gly Gln Ala Val Pro Ser Val
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Ser Leu Val Lys Lys Lys Phe Leu Gly Lys Tyr Ala Ile Ser Ala
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Glu Glu Phe Ser Glu Glu Met Val Gly Ala Lys Ser Arg Asn Val
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Ala Tyr Leu Lys Gly Lys Val Pro Ser Trp Val Gly Val Pro Thr
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Ser Val Ala Ile Pro Phe Gly Thr Phe Glu Lys Val Leu Ser Asp
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Glu Ile Asn Lys Glu Val Ala Gln Thr Ile Gln Met Leu Lys Gly
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Lys Leu Ala Gln Asp Asp Phe Ser Ala Leu Gly Glu Ile Arg Lys
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Thr Val Leu Asn Leu Thr Ala Pro Thr Gln Leu Ile Lys Glu Leu
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BCS 04-5003-PCT_Erhöhte Akt. OK1 & R1_SEQUENZPROTOKOLL.ST25
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Trp Ala Ser Lys Trp Asn Glu Arg Ala Tyr Phe Ser Thr Arg Lys
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Val Lys Leu Asp His Asp Tyr Leu Ser Met Ala Val Leu Val Gln
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Glu Ile Val Asn Ala Asp Tyr Ala Phe Val Ile His Thr Thr Asn
 1295 1300 1305

Pro Ser Ser Gly Asp Ser Ser Glu Ile Tyr Ala Glu Val Val Lys
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Gly Leu Gly Glu Thr Leu Val Gly Ala Tyr Pro Gly Arg Ala Met
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Ser Phe Val Cys Lys Lys Asn Asp Leu Asp Ser Pro Lys Val Leu
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Gly Phe Pro Ser Lys Pro Ile Gly Val Phe Ile Lys Arg Ser Ile
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Ile Phe Arg Ser Asp Ser Asn Gly Glu Asp Leu Glu Gly Tyr Ala
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Gly Ala Arg Leu Tyr Asp Ser Val Pro Met Asp Glu Glu Asp Glu
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Val Ile Val Asp Tyr Asn Asn Gly Pro Leu Ile Thr Asp Gln Gly
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Phe Gln Lys Ser Asn Leu Pro Ser Ile Ala Pro Ala Gly His Ala
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Ile Phe His Gln Thr Val Leu Cys Gln Thr Gln Thr Val Ala Glu His
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40 45 50agg aaa cgc aaa tta acc atg gga agg cac cac cac cgc cac gtt gac 306
Arg Lys Arg Lys Leu Thr Met Gly Arg His His His Arg His Val Asp
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Ala Val Pro Arg Ala Val Leu Thr Thr Asn Leu Ala Ser Glu Leu Ser
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Gly Lys Phe Asn Leu Asp Gly Asn Ile Glu Leu Gln Ile Ala Val Ser
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Ser Ser Glu Pro Gly Ala Ala Arg Gln Val Asp Phe Lys Val Ser Tyr
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Asn Ser Glu Ser Leu Leu Leu His Trp Gly Val Val Arg Asp Gln Pro
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Gly Lys Trp Val Leu Pro Ser Arg His Pro Asp Gly Thr Lys Asn Tyr
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Lys Ser Arg Ala Leu Arg Thr Pro Phe Val Lys Ser Asp Ser Gly Ser

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cct Pro 485	ttc Phe	aaa Lys	gct Ala	ggt Gly	tct Ser 490	tcg Ser	tct Ser	cat His	cct Pro	tct Ser 495	tat Tyr	gag Glu	gtc Val	cag Gln	tcc Ser 500	1602
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act Thr	agt Ser	cct Pro	gat Asp	gat Asp	gtt Val	gta Val	atc Ile	tgt Cys	cag Gln	gca Ala	cta Leu	att Ile	gat Asp	tat Tyr	ata Ile	2226

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Val	Glu	Pro	Leu	Leu	Glu	Gly	Leu	Leu	Glu	Ala	Arg	Gln	Glu	Leu	Gln	
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Pro	Ser	Leu	Ser	Lys	Ser	Gln	Ser	Arg	Leu	Lys	Asp	Leu	Ile	Phe	Leu	
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Asp	Val	Ala	Leu	Asp	Ser	Thr	Val	Arg	Thr	Ala	Val	Glu	Arg	Ser	Tyr	
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Lys	Asp	Thr	His	Trp	Ala	Leu	Tyr	Ala	Lys	Ser	Val	Leu	Asp	Arg	Thr	
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Gly	Ser	Lys	Trp	Asn	Glu	Arg	Ala	Tyr	Phe	Ser	Thr	Arg	Lys	Val				
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Glu	Glu	Leu	Tyr	Gly	Thr	Pro	Gln	Asp	Ile	Glu	Gly	Val	Ile	Lys				
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aacatggcct			tatagattta			ttacatgata			tattgaaaat			taaggaataa			gtgtataaaa			4662

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 35 40 45

Arg Leu Cys Val Arg Lys Arg Lys Leu Thr Met Gly Arg His His His
 50 55 60

Arg His Val Asp Ala Val Pro Arg Ala Val Leu Thr Thr Asn Leu Ala
 65 70 75 80

Ser Glu Leu Ser Gly Lys Phe Asn Leu Asp Gly Asn Ile Glu Leu Gln
 85 90 95

Ile Ala Val Ser Ser Ser Glu Pro Gly Ala Ala Arg Gln Val Asp Phe
 100 105 110

Lys Val Ser Tyr Asn Ser Glu Ser Leu Leu Leu His Trp Gly Val Val
 115 120 125

Arg Asp Gln Pro Gly Lys Trp Val Leu Pro Ser Arg His Pro Asp Gly
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Thr Lys Asn Tyr Lys Ser Arg Ala Leu Arg Thr Pro Phe Val Lys Ser
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Asp Ser Gly Ser Phe Leu Lys Ile Glu Ile Asp Asp Pro Ala Ala Gln
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Ala Ile Glu Phe Leu Ile Leu Asp Glu Ala Lys Asn Lys Trp Phe Lys
 180 185 190

Asn Asn Gly Glu Asn Phe His Ile Lys Leu Pro Val Lys Ser Lys Leu
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 Lys Glu Glu Tyr Glu Ala Ala Arg Asn Glu Leu Leu Glu Glu Val Ala
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 Pro Asp Glu Leu Val Gln Ile Gln Ala Phe Ile Arg Trp Glu Lys Ala
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 Lys Gln Leu Lys Thr Lys Lys Tyr Phe Arg Ala Glu Arg Ile Gln Arg
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 Lys Lys Arg Asp Leu Met Gln Leu Ile Asn Arg Asn Val Ala Gln Asn
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 Ile Val Glu Gln Val Ile Asp Ala Pro Lys Ala Leu Thr Val Ile Glu
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 His Tyr Ala Asn Ala Arg Glu Glu Tyr Glu Ser Gly Pro Val Leu Asn
 405 410 415
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 420 425 430
 Lys Asp Ala Gly Lys Ile Lys Val His Leu Ala Thr Asp Ser Lys Lys
 435 440 445
 Pro Phe Thr Leu His Trp Ala Leu Ser Arg Thr Ser Glu Glu Trp Leu
 450 455 460
 Val Pro Pro Glu Thr Ala Leu Pro Pro Gly Ser Val Thr Met Asn Glu
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Ile Pro Phe Val Ile Leu Ser Asp Gly Glu Trp Ile Lys Asn Asn Gly
515 520 525

Ser Asn Phe Tyr Ile Glu Phe Gly Gly Lys Lys Gln Lys Gln Lys Asp
530 535 540

Phe Gly Asn Gly Lys Gly Thr Ala Lys Phe Leu Leu Asn Lys Ile Ala
545 550 555 560

Glu Met Glu Ser Glu Ala Gln Lys Ser Phe Met His Arg Phe Asn Ile
565 570 575

Ala Ser Asp Leu Ile Asp Glu Ala Lys Asn Ala Gly Gln Leu Gly Leu
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Ala Gly Ile Leu Val Trp Met Arg Phe Met Ala Thr Arg Gln Leu Ile
595 600 605

Trp Asn Lys Asn Tyr Asn Val Lys Pro Arg Glu Ile Ser Lys Ala Gln
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Asp Arg Leu Thr Asp Leu Leu Gln Asp Val Tyr Ala Asn Tyr Pro Gln
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Tyr Arg Glu Ile Val Arg Met Ile Leu Ser Thr Val Gly Arg Gly Gly
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Glu Gly Asp Val Gly Gln Arg Ile Arg Asp Glu Ile Leu Val Ile Gln
660 665 670

Arg Asn Asn Asp Cys Lys Gly Gly Met Met Glu Glu Trp His Gln Lys
675 680 685

Leu His Asn Asn Thr Ser Pro Asp Asp Val Val Ile Cys Gln Ala Leu
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Ile Asp Tyr Ile Asn Ser Asp Phe Asp Ile Gly Val Tyr Trp Lys Ala
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Leu Asn Asp Asn Arg Ile Thr Lys Glu Arg Leu Leu Ser Tyr Asp Arg
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Ala Ile His Ser Glu Pro Asn Phe Arg Arg Asp Gln Lys Glu Gly Leu
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 785 790 795 800
 Leu Pro Thr Gly Phe Pro Glu Leu Leu Glu Phe Val Met Glu His Val
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 820 825 830
 Gln Glu Leu Gln Pro Ser Leu Ser Lys Ser Gln Ser Arg Leu Lys Asp
 835 840 845
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 Tyr Phe Ile Ser Leu Val Leu Glu Asn Leu Ala Leu Ser Ser Asp Asp
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 Asn Glu Asp Leu Ile Tyr Cys Leu Lys Gly Trp Asp Val Ala Leu Ser
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 Met Cys Lys Ile Lys Asp Thr His Trp Ala Leu Tyr Ala Lys Ser Val
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 Leu Asp Arg Thr Arg Leu Ala Leu Thr Asn Lys Ala His Leu Tyr Gln
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 945 950 955 960
 Asp Lys Trp Ala Val Glu Ile Phe Thr Glu Glu Ile Ile Arg Ala Gly
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 Ser Ala Ala Ser Leu Ser Thr Leu Leu Asn Arg Leu Asp Pro Val Leu
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 Arg Lys Thr Ala His Leu Gly Ser Trp Gln Val Ile Ser Pro Val Glu
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 Thr Val Gly Tyr Val Glu Val Val Asp Glu Leu Leu Thr Val Gln
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 Thr Ser Ala Asp Val Val Tyr Ser Glu Val Lys Glu Gly Glu Phe
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 Glu Leu Lys Thr Lys Met Lys Ser Ser Gly Met Pro Trp Pro Gly
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 Lys Val Trp Gly Ser Lys Trp Asn Glu Arg Ala Tyr Phe Ser Thr
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Ile	Asp	Gln	Leu	Arg	Gln	Lys	Ile	Leu	Lys	Gly	Asn	Ile	Glu	Ser	Lys	
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gtt	tcc	aag	cag	ctg	aag	aac	aag	aag	tac	ttc	tct	gta	gaa	agg	att	1279
Val	Ser	Lys	Gln	Leu	Lys	Asn	Lys	Lys	Tyr	Phe	Ser	Val	Glu	Arg	Ile	
	360					365					370					
cag	cgc	aaa	aag	aga	gat	atc	aca	caa	ctt	ctc	agt	aaa	cat	aag	cat	1327
Gln	Arg	Lys	Lys	Arg	Asp	Ile	Thr	Gln	Leu	Leu	Ser	Lys	His	Lys	His	
					380					385					390	
aca	ctt	gtg	gaa	gat	aaa	gta	gag	gtt	gta	cca	aaa	caa	cca	act	gtt	1375
Thr	Leu	Val	Glu	Asp	Lys	Val	Glu	Val	Val	Pro	Lys	Gln	Pro	Thr	Val	
				395					400					405		
ctt	gat	ctc	ttc	acc	aag	tct	tta	cat	gag	aag	gat	ggc	tgt	gaa	gtt	1423
Leu	Asp	Leu	Phe	Thr	Lys	Ser	Leu	His	Glu	Lys	Asp	Gly	Cys	Glu	Val	
			410					415					420			
cta	agc	aga	aag	ctc	ttc	aag	ttc	ggc	gat	aaa	gag	ata	ctg	gca	att	1471
Leu	Ser	Arg	Lys	Leu	Phe	Lys	Phe	Gly	Asp	Lys	Glu	Ile	Leu	Ala	Ile	
		425					430					435				
tct	acc	aag	gtt	caa	aat	aaa	aca	gaa	gtt	cac	ttg	gca	aca	aac	cat	1519
Ser	Thr	Lys	Val	Gln	Asn	Lys	Thr	Glu	Val	His	Leu	Ala	Thr	Asn	His	
	440					445					450					
acc	gac	cca	ctt	att	ctt	cac	tgg	tct	ttg	gca	aaa	aat	gct	gga	gaa	1567
Thr	Asp	Pro	Leu	Ile	Leu	His	Trp	Ser	Leu	Ala	Lys	Asn	Ala	Gly	Glu	

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455	460							465					470				
tgg aag gca cct tct cca aat ata ttg cca tct ggt tcc aca ttg ctg	Trp	Lys	Ala	Pro	Ser	Pro	Asn	Ile	Leu	Pro	Ser	Gly	Ser	Thr	Leu	Leu	1615
				475						480					485		
gac aag gcg tgt gaa act gaa ttt act aaa tct gaa ttg gat ggt ttg	Asp	Lys	Ala	Cys	Glu	Thr	Glu	Phe	Thr	Lys	Ser	Glu	Leu	Asp	Gly	Leu	1663
				490					495					500			
cat tac cag gtt gtt gag ata gag ctt gat gat gga gga tac aaa gga	His	Tyr	Gln	Val	Val	Glu	Ile	Glu	Leu	Asp	Asp	Gly	Gly	Tyr	Lys	Gly	1711
			505					510					515				
atg cca ttt gtt ctt cgg tct ggt gaa aca tgg aaa aaa aat aat ggt	Met	Pro	Phe	Val	Leu	Arg	Ser	Gly	Glu	Thr	Trp	Lys	Lys	Asn	Asn	Gly	1759
							525					530					
tct gat ttt ttc cta gat ttc agc acc cat gat gtc aga aat att aag	Ser	Asp	Phe	Phe	Leu	Asp	Phe	Ser	Thr	His	Asp	Val	Arg	Asn	Ile	Lys	1807
						540					545					550	
tta aag ggc aat ggt gat gct ggt aaa ggt act gct aag gca ttg ctg	Leu	Lys	Gly	Asn	Gly	Asp	Ala	Gly	Lys	Gly	Thr	Ala	Lys	Ala	Leu	Leu	1855
				555						560					565		
gag aga ata gca gat ctg gag gaa gat gcc cag cga tct ctt atg cac	Glu	Arg	Ile	Ala	Asp	Leu	Glu	Glu	Asp	Ala	Gln	Arg	Ser	Leu	Met	His	1903
				570					575					580			
aga ttc aat att gca gca gat cta gct gac caa gcc aga gat gct gga	Arg	Phe	Asn	Ile	Ala	Ala	Asp	Leu	Ala	Asp	Gln	Ala	Arg	Asp	Ala	Gly	1951
			585					590					595				
ctt ttg ggt att gtt ggg ctt ttt gtt tgg att aga ttc atg gct acc	Leu	Leu	Gly	Ile	Val	Gly	Leu	Phe	Val	Trp	Ile	Arg	Phe	Met	Ala	Thr	1999
			600				605					610					
agg caa cta aca tgg aat aag aac tat aat gtg aag cca cgt gag ata	Arg	Gln	Leu	Thr	Trp	Asn	Lys	Asn	Tyr	Asn	Val	Lys	Pro	Arg	Glu	Ile	2047
						620					625					630	
agc aaa gca cag gat agg ttt aca gat gat ctt gag aat atg tac aaa	Ser	Lys	Ala	Gln	Asp	Arg	Phe	Thr	Asp	Asp	Leu	Glu	Asn	Met	Tyr	Lys	2095
					635					640					645		
gct tat cca cag tac aga gag ata tta aga atg ata atg gct gct gtt	Ala	Tyr	Pro	Gln	Tyr	Arg	Glu	Ile	Leu	Arg	Met	Ile	Met	Ala	Ala	Val	2143
				650					655					660			
ggt cgc gga ggt gaa ggt gat gtt ggt caa cgc att cgt gat gag ata	Gly	Arg	Gly	Gly	Glu	Gly	Asp	Val	Gly	Gln	Arg	Ile	Arg	Asp	Glu	Ile	2191
			665					670					675				
tta gta ata cag aga aat aat gac tgc aaa ggt gga atg atg gaa gaa	Leu	Val	Ile	Gln	Arg	Asn	Asn	Asp	Cys	Lys	Gly	Gly	Met	Met	Glu	Glu	2239
						685						690					
tgg cac cag aaa ttg cac aac aat aca agc cca gat gat gta gtg ata	Trp	His	Gln	Lys	Leu	His	Asn	Asn	Thr	Ser	Pro	Asp	Asp	Val	Val	Ile	2287
						700					705					710	
tgc cag gcc tta att gat tat atc aag agt gac ttt gat ata agc gtt	Cys	Gln	Ala	Leu	Ile	Asp	Tyr	Ile	Lys	Ser	Asp	Phe	Asp	Ile	Ser	Val	2335
					715					720					725		
tac tgg gac acc ttg aac aaa aat ggc ata acc aaa gag cgt ctc ttg	Tyr	Trp	Asp	Thr	Leu	Asn	Lys	Asn	Gly	Ile	Thr	Lys	Glu	Arg	Leu	Leu	2383

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730				735				740								
agc	tat	gat	cgt	gct	att	cat	tca	gaa	cca	aat	ttc	aga	agt	gaa	cag	2431
Ser	Tyr	Asp	Arg	Ala	Ile	His	Ser	Glu	Pro	Asn	Phe	Arg	Ser	Glu	Gln	
		745					750					755				
aag	gcg	ggg	tta	ctc	cgt	gac	ctg	gga	aat	tac	atg	aga	agc	cta	aag	2479
Lys	Ala	Gly	Leu	Leu	Arg	Asp	Leu	Gly	Asn	Tyr	Met	Arg	Ser	Leu	Lys	
	760					765					770					
gct	gtg	cat	tct	ggg	gct	gat	ctt	gaa	tct	gct	ata	gca	agt	tgt	atg	2527
Ala	Val	His	Ser	Gly	Ala	Asp	Leu	Glu	Ser	Ala	Ile	Ala	Ser	Cys	Met	
775					780					785					790	
gga	tac	aaa	tca	gag	ggg	gaa	ggg	ttc	atg	ggt	ggg	ggt	cag	atc	aat	2575
Gly	Tyr	Lys	Ser	Glu	Gly	Glu	Gly	Phe	Met	Val	Gly	Val	Gln	Ile	Asn	
				795					800					805		
cca	gtg	aag	ggg	tta	cca	tct	gga	ttt	ccg	gag	ttg	ctt	gaa	ttt	gtg	2623
Pro	Val	Lys	Gly	Leu	Pro	Ser	Gly	Phe	Pro	Glu	Leu	Leu	Glu	Phe	Val	
			810					815					820			
ctt	gaa	cat	gtt	gag	gat	aaa	tca	gcg	gaa	cca	ctt	ctt	gag	ggg	cta	2671
Leu	Glu	His	Val	Glu	Asp	Lys	Ser	Ala	Glu	Pro	Leu	Leu	Glu	Gly	Leu	
		825					830					835				
ttg	gaa	gct	cga	gtt	gaa	ctg	cgc	cct	ttg	ctt	ctt	gat	tcg	cgt	gaa	2719
Leu	Glu	Ala	Arg	Val	Glu	Leu	Arg	Pro	Leu	Leu	Leu	Asp	Ser	Arg	Glu	
	840					845					850					
cgc	atg	aaa	gat	ctt	ata	ttt	ttg	gac	att	gct	ctt	gat	tct	acc	ttc	2767
Arg	Met	Lys	Asp	Leu	Ile	Phe	Leu	Asp	Ile	Ala	Leu	Asp	Ser	Thr	Phe	
855					860					865					870	
agg	aca	gca	att	gaa	agg	tca	tat	gag	gag	ctg	aat	gat	gca	gcc	cca	2815
Arg	Thr	Ala	Ile	Glu	Arg	Ser	Tyr	Glu	Glu	Leu	Asn	Asp	Ala	Ala	Pro	
				875					880					885		
gag	aaa	ata	atg	tac	ttc	atc	agt	ctt	gtc	ctt	gaa	aat	ctt	gcg	ctt	2863
Glu	Lys	Ile	Met	Tyr	Phe	Ile	Ser	Leu	Val	Leu	Glu	Asn	Leu	Ala	Leu	
			890					895					900			
tca	att	gac	gac	aat	gaa	gac	atc	ctg	tat	tgt	tta	aag	gga	tgg	aac	2911
Ser	Ile	Asp	Asp	Asn	Glu	Asp	Ile	Leu	Tyr	Cys	Leu	Lys	Gly	Trp	Asn	
		905					910					915				
caa	gcc	ttg	gaa	atg	gct	aag	caa	aaa	gac	gac	caa	tgg	gcg	ctc	tat	2959
Gln	Ala	Leu	Glu	Met	Ala	Lys	Gln	Lys	Asp	Asp	Gln	Trp	Ala	Leu	Tyr	
	920					925					930					
gct	aaa	gca	ttt	ctt	gac	aga	aac	aga	ctt	gcc	ctt	gcg	agc	aag	gga	3007
Ala	Lys	Ala	Phe	Leu	Asp	Arg	Asn	Arg	Leu	Ala	Leu	Ala	Ser	Lys	Gly	
					940					945					950	
gaa	caa	tac	cat	aat	atg	atg	cag	ccc	tct	gct	gag	tat	ctt	ggc	tcg	3055
Glu	Gln	Tyr	His	Asn	Met	Met	Gln	Pro	Ser	Ala	Glu	Tyr	Leu	Gly	Ser	
				955					960					965		
tta	ctc	agc	ata	gac	caa	tgg	gca	gtc	aat	atc	ttc	aca	gaa	gaa	att	3103
Leu	Leu	Ser	Ile	Asp	Gln	Trp	Ala	Val	Asn	Ile	Phe	Thr	Glu	Glu	Ile	
			970					975					980			
ata	cgc	ggg	gga	tca	gct	gct	act	ctg	tct	gct	ctt	ctg	aac	cga	ttt	3151
Ile	Arg	Gly	Gly	Ser	Ala	Ala	Thr	Leu	Ser	Ala	Leu	Leu	Asn	Arg	Phe	
		985					990					995				
gat	cct	gtt	tta	agg	aat	gtt	gct	cac	ctc	gga	agt	tgg	cag	gtt		3196
Asp	Pro	Val	Leu	Arg	Asn	Val	Ala	His	Leu	Gly	Ser	Trp	Gln	Val		

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1000						1005						1010		
ata Ile	agc Ser 1015	ccg Pro	gtt Val	gaa Glu	gta Val	tca Ser 1020	ggg Gly	tat Tyr	gtg Val	gtt Val	gtg Val 1025	gtt Val	gat Asp	gag Glu 3241
tta Leu	ctt Leu 1030	gct Ala	gtc Val	cag Gln	aac Asn	aaa Lys 1035	tct Ser	tat Tyr	gat Asp	aaa Lys	cca Pro 1040	acc Thr	atc Ile	ctt Leu 3286
gtg Val	gca Ala 1045	aag Lys	agt Ser	gtc Val	aag Lys	gga Gly 1050	gag Glu	gaa Glu	gaa Glu	ata Ile	cca Pro 1055	gat Asp	gga Gly	gta Val 3331
gtt Val	ggg Gly 1060	gta Val	att Ile	aca Thr	cct Pro	gat Asp 1065	atg Met	cca Pro	gat Asp	gtt Val	ctg Leu 1070	tct Ser	cat His	gtg Val 3376
tca Ser	gtc Val 1075	cga Arg	gca Ala	agg Arg	aac Asn	agc Ser 1080	aag Lys	gta Val	ctg Leu	ttt Phe	gcg Ala 1085	acc Thr	tgt Cys	ttt Phe 3421
gac Asp	cac His 1090	acc Thr	act Thr	cta Leu	tct Ser	gaa Glu 1095	ctt Leu	gaa Glu	gga Gly	tat Tyr	gat Asp 1100	cag Gln	aaa Lys	ctg Leu 3466
ttt Phe	tcc Ser 1105	ttc Phe	aag Lys	cct Pro	act Thr	tct Ser 1110	gca Ala	gat Asp	ata Ile	acc Thr	tat Tyr 1115	agg Arg	gag Glu	atc Ile 3511
aca Thr	gag Glu 1120	agt Ser	gaa Glu	ctt Leu	cag Gln	caa Gln 1125	tca Ser	agt Ser	tct Ser	cca Pro	aac Asn 1130	gca Ala	gaa Glu	gtt Val 3556
ggc Gly	cat His 1135	gca Ala	gta Val	cca Pro	tct Ser	att Ile 1140	tca Ser	ttg Leu	gcc Ala	aag Lys	aag Lys 1145	aaa Lys	ttt Phe	ctt Leu 3601
gga Gly	aaa Lys 1150	tat Tyr	gca Ala	ata Ile	tca Ser	gcc Ala 1155	gaa Glu	gaa Glu	ttc Phe	tct Ser	gag Glu 1160	gaa Glu	atg Met	gtt Val 3646
ggg Gly	gcc Ala 1165	aag Lys	tct Ser	cgg Arg	aac Asn	ata Ile 1170	gca Ala	tac Tyr	ctc Leu	aaa Lys	gga Gly 1175	aaa Lys	gta Val	cct Pro 3691
tca Ser	tgg Trp 1180	gtc Val	ggg Gly	gtc Val	cca Pro	acg Thr 1185	tca Ser	gtt Val	gcg Ala	ata Ile	cca Pro 1190	ttt Phe	ggc Gly	act Thr 3736
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agc Ser	ata Ile 1210	gag Glu	aag Lys	ctt Leu	aag Lys	atc Ile 1215	aga Arg	ctt Leu	gcc Ala	caa Gln	gaa Glu 1220	gat Asp	ttt Phe	agt Ser 3826
gct Ala	cta Leu 1225	ggg Gly	gaa Glu	ata Ile	aga Arg	aaa Lys 1230	gtc Val	gtc Val	ctt Leu	aac Asn	ctt Leu 1235	act Thr	gct Ala	cct Pro 3871
atg Met	caa Gln 1240	ttg Leu	gtt Val	aac Asn	gag Glu	ctg Leu 1245	aag Lys	gag Glu	agg Arg	atg Met	cta Leu 1250	ggc Gly	tct Ser	gga Gly 3916
atg Met	ccc Pro	tgg Trp	cct Pro	ggg Gly	gat Asp	gaa Glu	gga Gly	gac Asp	aag Lys	cgt Arg	tgg Trp	gag Glu	caa Gln	gca Ala 3961

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1255				1260				1265							
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1270															
gca Ala	tat Tyr	ttt Phe	agc Ser	aca Thr	cgc Arg	aag Lys	gtg Val	aaa Lys	ctt Leu	gat Asp	cat His	gag Glu	tac Tyr	ctt Leu	4051
1285															
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1300															
ttt Phe	gtc Val	att Ile	cat His	acc Thr	aca Thr	aac Asn	cca Pro	tcg Ser	tct Ser	gga Gly	gat Asp	tct Ser	tct Ser	gag Glu	4141
1315															
ata Ile	tat Tyr	gct Ala	gaa Glu	gtg Val	gtg Val	aaa Lys	ggg Gly	ctt Leu	ggc Gly	gag Glu	acc Thr	ctc Leu	gtg Val	gga Gly	4186
1330															
gcc Ala	tat Tyr	cct Pro	ggt Gly	cgt Arg	gct Ala	atg Met	agc Ser	ttt Phe	gtt Val	tgc Cys	aaa Lys	aaa Lys	gat Asp	gac Asp	4231
1345															
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1360															
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1375															
gag Glu	gac Asp	ctg Leu	gaa Glu	ggt Gly	tat Tyr	gct Ala	gga Gly	gca Ala	gga Gly	tta Leu	tat Tyr	gat Asp	agt Ser	gta Val	4366
1390															
ccg Pro	atg Met	gat Asp	gag Glu	gag Glu	gat Asp	gag Glu	gtt Val	gta Val	ctt Leu	gat Asp	tat Tyr	aca Thr	act Thr	gac Asp	4411
1405															
cct Pro	ctt Leu	ata Ile	gta Val	gac Asp	cgt Arg	gga Gly	ttc Phe	cga Arg	agc Ser	tca Ser	atc Ile	ctc Leu	tca Ser	agc Ser	4456
1420															
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1435															
cag Gln	gac Asp	gtc Val	gag Glu	gga Gly	gta Val	gtg Val	aag Lys	gat Asp	gga Gly	aaa Lys	atc Ile	tat Tyr	gta Val	gtc Val	4546
1450															
cag Gln	aca Thr	aga Arg	cca Pro	cag Gln	atg Met	tag	tat	gtat	gca	tct	att	agac	agctcaataa		4597
1465															
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cctagatgta caacacgtgt actcgtatat atatatataa atgctgaaac aagcattgggt															4717
cctgtactgt agtttctaca ttctattgtc accaataatt aagtgtactc ctatggctgg															4777
gagtctatga aaatggacgt gttgacttat tgggtaataa ataatttata taaaaaaaaa															4837
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<210> 17

<211> 1469

<212> PRT

<213> Zea mays

<400> 17

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Ala Leu Ala Phe Arg Ala Arg Pro Ala Ala Ser Ser Pro Ala Lys Arg
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Gln Gln Gln Pro Gln Pro Ala Ser Leu Arg Arg Ser Gly Gly Gln Arg
 35 40 45

Arg Pro Thr Thr Leu Ser Ala Ser Ser Arg Gly Pro Val Val Pro Arg
 50 55 60

Ala Val Ala Thr Ser Ala Asp Arg Ala Ser Pro Asp Leu Ile Gly Lys
 65 70 75 80

Phe Thr Leu Asp Ser Asn Ser Glu Leu Gln Val Ala Val Asn Pro Ala
 85 90 95

Pro Gln Gly Leu Val Ser Glu Ile Ser Leu Glu Val Thr Asn Thr Ser
 100 105 110

Gly Ser Leu Ile Leu His Trp Gly Ala Leu Arg Pro Asp Lys Arg Asp
 115 120 125

Trp Ile Leu Pro Ser Arg Lys Pro Asp Gly Thr Thr Val Tyr Lys Asn
 130 135 140

Arg Ala Leu Arg Thr Pro Phe Val Lys Ser Gly Asp Asn Ser Thr Leu
 145 150 155 160

Arg Ile Glu Ile Asp Asp Pro Gly Val His Ala Ile Glu Phe Leu Ile
 165 170 175

Phe Asp Glu Thr Gln Asn Lys Trp Phe Lys Asn Asn Gly Gln Asn Phe
 180 185 190

Gln Val Gln Phe Gln Ser Ser Arg His Gln Gly Thr Gly Ala Ser Gly
 195 200 205

Ala Ser Ser Ser Ala Thr Ser Thr Leu Val Pro Glu Asp Leu Val Gln
 210 215 220

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Ile Gln Ala Tyr Leu Arg Trp Glu Arg Arg Gly Lys Gln Ser Tyr Thr
 225 230 235 240
 Pro Glu Gln Glu Lys Glu Glu Tyr Glu Ala Ala Arg Ala Glu Leu Ile
 245 250 255
 Glu Glu Val Asn Arg Gly Val Ser Leu Glu Lys Leu Arg Ala Lys Leu
 260 265 270
 Thr Lys Ala Pro Glu Ala Pro Glu Ser Asp Glu Ser Lys Ser Ser Ala
 275 280 285
 Ser Arg Met Pro Ile Gly Lys Leu Pro Glu Asp Leu Val Gln Val Gln
 290 295 300
 Ala Tyr Ile Arg Trp Glu Gln Ala Gly Lys Pro Asn Tyr Pro Pro Glu
 305 310 315 320
 Lys Gln Leu Val Glu Phe Glu Glu Ala Arg Lys Glu Leu Gln Ala Glu
 325 330 335
 Val Asp Lys Gly Ile Ser Ile Asp Gln Leu Arg Gln Lys Ile Leu Lys
 340 345 350
 Gly Asn Ile Glu Ser Lys Val Ser Lys Gln Leu Lys Asn Lys Lys Tyr
 355 360 365
 Phe Ser Val Glu Arg Ile Gln Arg Lys Lys Arg Asp Ile Thr Gln Leu
 370 375 380
 Leu Ser Lys His Lys His Thr Leu Val Glu Asp Lys Val Glu Val Val
 385 390 395 400
 Pro Lys Gln Pro Thr Val Leu Asp Leu Phe Thr Lys Ser Leu His Glu
 405 410 415
 Lys Asp Gly Cys Glu Val Leu Ser Arg Lys Leu Phe Lys Phe Gly Asp
 420 425 430
 Lys Glu Ile Leu Ala Ile Ser Thr Lys Val Gln Asn Lys Thr Glu Val
 435 440 445
 His Leu Ala Thr Asn His Thr Asp Pro Leu Ile Leu His Trp Ser Leu
 450 455 460
 Ala Lys Asn Ala Gly Glu Trp Lys Ala Pro Ser Pro Asn Ile Leu Pro
 465 470 475 480
 Ser Gly Ser Thr Leu Leu Asp Lys Ala Cys Glu Thr Glu Phe Thr Lys
 485 490 495

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Ser Glu Leu Asp Gly Leu His Tyr Gln Val Val Glu Ile Glu Leu Asp
 500 505 510

Asp Gly Gly Tyr Lys Gly Met Pro Phe Val Leu Arg Ser Gly Glu Thr
 515 520 525

Trp Lys Lys Asn Asn Gly Ser Asp Phe Phe Leu Asp Phe Ser Thr His
 530 535 540

Asp Val Arg Asn Ile Lys Leu Lys Gly Asn Gly Asp Ala Gly Lys Gly
 545 550 555 560

Thr Ala Lys Ala Leu Leu Glu Arg Ile Ala Asp Leu Glu Glu Asp Ala
 565 570 575

Gln Arg Ser Leu Met His Arg Phe Asn Ile Ala Ala Asp Leu Ala Asp
 580 585 590

Gln Ala Arg Asp Ala Gly Leu Leu Gly Ile Val Gly Leu Phe Val Trp
 595 600 605

Ile Arg Phe Met Ala Thr Arg Gln Leu Thr Trp Asn Lys Asn Tyr Asn
 610 615 620

Val Lys Pro Arg Glu Ile Ser Lys Ala Gln Asp Arg Phe Thr Asp Asp
 625 630 635 640

Leu Glu Asn Met Tyr Lys Ala Tyr Pro Gln Tyr Arg Glu Ile Leu Arg
 645 650 655

Met Ile Met Ala Ala Val Gly Arg Gly Gly Glu Gly Asp Val Gly Gln
 660 665 670

Arg Ile Arg Asp Glu Ile Leu Val Ile Gln Arg Asn Asn Asp Cys Lys
 675 680 685

Gly Gly Met Met Glu Glu Trp His Gln Lys Leu His Asn Asn Thr Ser
 690 695 700

Pro Asp Asp Val Val Ile Cys Gln Ala Leu Ile Asp Tyr Ile Lys Ser
 705 710 715 720

Asp Phe Asp Ile Ser Val Tyr Trp Asp Thr Leu Asn Lys Asn Gly Ile
 725 730 735

Thr Lys Glu Arg Leu Leu Ser Tyr Asp Arg Ala Ile His Ser Glu Pro
 740 745 750

Asn Phe Arg Ser Glu Gln Lys Ala Gly Leu Leu Arg Asp Leu Gly Asn
 755 760 765

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Tyr Met Arg Ser Leu Lys Ala Val His Ser Gly Ala Asp Leu Glu Ser
 770 775 780

Ala Ile Ala Ser Cys Met Gly Tyr Lys Ser Glu Gly Glu Gly Phe Met
 785 790 795 800

Val Gly Val Gln Ile Asn Pro Val Lys Gly Leu Pro Ser Gly Phe Pro
 805 810 815

Glu Leu Leu Glu Phe Val Leu Glu His Val Glu Asp Lys Ser Ala Glu
 820 825 830

Pro Leu Leu Glu Gly Leu Leu Glu Ala Arg Val Glu Leu Arg Pro Leu
 835 840 845

Leu Leu Asp Ser Arg Glu Arg Met Lys Asp Leu Ile Phe Leu Asp Ile
 850 855 860

Ala Leu Asp Ser Thr Phe Arg Thr Ala Ile Glu Arg Ser Tyr Glu Glu
 865 870 875 880

Leu Asn Asp Ala Ala Pro Glu Lys Ile Met Tyr Phe Ile Ser Leu Val
 885 890 895

Leu Glu Asn Leu Ala Leu Ser Ile Asp Asp Asn Glu Asp Ile Leu Tyr
 900 905 910

Cys Leu Lys Gly Trp Asn Gln Ala Leu Glu Met Ala Lys Gln Lys Asp
 915 920 925

Asp Gln Trp Ala Leu Tyr Ala Lys Ala Phe Leu Asp Arg Asn Arg Leu
 930 935 940

Ala Leu Ala Ser Lys Gly Glu Gln Tyr His Asn Met Met Gln Pro Ser
 945 950 955 960

Ala Glu Tyr Leu Gly Ser Leu Leu Ser Ile Asp Gln Trp Ala Val Asn
 965 970 975

Ile Phe Thr Glu Glu Ile Ile Arg Gly Gly Ser Ala Ala Thr Leu Ser
 980 985 990

Ala Leu Leu Asn Arg Phe Asp Pro Val Leu Arg Asn Val Ala His Leu
 995 1000 1005

Gly Ser Trp Gln Val Ile Ser Pro Val Glu Val Ser Gly Tyr Val
 1010 1015 1020

Val Val Val Asp Glu Leu Leu Ala Val Gln Asn Lys Ser Tyr Asp
 1025 1030 1035

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Lys Pro Thr Ile Leu Val Ala Lys Ser Val Lys Gly Glu Glu Glu
 1040 1045 1050
 Ile Pro Asp Gly Val Val Gly Val Ile Thr Pro Asp Met Pro Asp
 1055 1060 1065
 Val Leu Ser His Val Ser Val Arg Ala Arg Asn Ser Lys Val Leu
 1070 1075 1080
 Phe Ala Thr Cys Phe Asp His Thr Thr Leu Ser Glu Leu Glu Gly
 1085 1090 1095
 Tyr Asp Gln Lys Leu Phe Ser Phe Lys Pro Thr Ser Ala Asp Ile
 1100 1105 1110
 Thr Tyr Arg Glu Ile Thr Glu Ser Glu Leu Gln Gln Ser Ser Ser
 1115 1120 1125
 Pro Asn Ala Glu Val Gly His Ala Val Pro Ser Ile Ser Leu Ala
 1130 1135 1140
 Lys Lys Lys Phe Leu Gly Lys Tyr Ala Ile Ser Ala Glu Glu Phe
 1145 1150 1155
 Ser Glu Glu Met Val Gly Ala Lys Ser Arg Asn Ile Ala Tyr Leu
 1160 1165 1170
 Lys Gly Lys Val Pro Ser Trp Val Gly Val Pro Thr Ser Val Ala
 1175 1180 1185
 Ile Pro Phe Gly Thr Phe Glu Lys Val Leu Ser Asp Gly Leu Asn
 1190 1195 1200
 Lys Glu Val Ala Gln Ser Ile Glu Lys Leu Lys Ile Arg Leu Ala
 1205 1210 1215
 Gln Glu Asp Phe Ser Ala Leu Gly Glu Ile Arg Lys Val Val Leu
 1220 1225 1230
 Asn Leu Thr Ala Pro Met Gln Leu Val Asn Glu Leu Lys Glu Arg
 1235 1240 1245
 Met Leu Gly Ser Gly Met Pro Trp Pro Gly Asp Glu Gly Asp Lys
 1250 1255 1260
 Arg Trp Glu Gln Ala Trp Met Ala Ile Lys Lys Val Trp Ala Ser
 1265 1270 1275
 Lys Trp Asn Glu Arg Ala Tyr Phe Ser Thr Arg Lys Val Lys Leu
 1280 1285 1290

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Asp His Glu Tyr Leu Ser Met Ala Val Leu Val Gln Glu Val Val
 1295 1300 1305
 Asn Ala Asp Tyr Ala Phe Val Ile His Thr Thr Asn Pro Ser Ser
 1310 1315 1320
 Gly Asp Ser Ser Glu Ile Tyr Ala Glu Val Val Lys Gly Leu Gly
 1325 1330 1335
 Glu Thr Leu Val Gly Ala Tyr Pro Gly Arg Ala Met Ser Phe Val
 1340 1345 1350
 Cys Lys Lys Asp Asp Leu Asp Ser Pro Lys Leu Leu Gly Tyr Pro
 1355 1360 1365
 Ser Lys Pro Ile Gly Leu Phe Ile Arg Gln Ser Ile Ile Phe Arg
 1370 1375 1380
 Ser Asp Ser Asn Gly Glu Asp Leu Glu Gly Tyr Ala Gly Ala Gly
 1385 1390 1395
 Leu Tyr Asp Ser Val Pro Met Asp Glu Glu Asp Glu Val Val Leu
 1400 1405 1410
 Asp Tyr Thr Thr Asp Pro Leu Ile Val Asp Arg Gly Phe Arg Ser
 1415 1420 1425
 Ser Ile Leu Ser Ser Ile Ala Arg Ala Gly His Ala Ile Glu Glu
 1430 1435 1440
 Leu Tyr Gly Ser Pro Gln Asp Val Glu Gly Val Val Lys Asp Gly
 1445 1450 1455
 Lys Ile Tyr Val Val Gln Thr Arg Pro Gln Met
 1460 1465